Bibliography of Publications by Staff of the Atlantic Geoscience Centre to December 1984

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Regional and headquarters establishments of Ocean Science and Surveys ceased publication of their various report series as of December 1981. A complete listing of these publications is published in the *Canadian Journal of Fisheries and Aquatic Sciences*, Volume 39: Index to Publications 1982. The current series, which begins with report number 1, was initiated in January 1982.

Rapport statistique canadien sur l'hydrographie et les sciences océaniques

Les rapports statistiques servent de véhicule pour la compilation et la diffusion des données sous une forme directement utilisable par les scientifiques et les techniciens. En général, les rapports contiennent des données brutes ou analysées, mais ne fournissent pas d'interprétation des données. Ces compilations sont préparées le plus souvent à l'appui de travaux liés aux programmes et intérêts du service des Sciences et levés océaniques (SLO) du ministère des Pêches et des Océans.

Les rapports statistiques ne sont pas destinés à une vaste distribution et leur contenu ne doit pas être mentionné dans une publication sans une autorisation écrite préalable de l'établissement auteur. Le titre exact paraît au-dessus du résumé de chaque rapport. Les rapports statistiques sont résumés dans la revue *Résumés des sciences halieutiques et aquatiques*, et ils sont classés dans l'index annuel des publications scientifiques et techniques du Ministère.

Les rapports statistiques sont produits à l'échelon régional, mais numérotés à l'échelon national. Les demandes de rapports seront satisfaites par l'établissement auteur dont le nom figure sur la couverture et la page du titre. Les rapports épuisés sont fournis contre rétribution par des agents commerciaux.

Les établissements des Sciences et levés océaniques dans les régions et à l'administration centrale ont cessé de publier leurs diverses séries de rapports en décembre 1981. Une liste complète de ces publications figure dans le volume 39, Index des publications 1982, du *Journal canadien des sciences halieutiques et aquatiques*. La série actuelle a commencé avec la publication du rapport numéro 1 en janvier 1982.

Canadian Data Report of
Hydrography and Ocean Sciences No. 48

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BIBLIOGRAPHY OF PUBLICATIONS BY STAFF OF THE ATLANTIC GEOSCIENCE CENTRE TO DECEMBER 1984

by

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ABSTRACT

Fricker, A. and Samson, A. 1986. Bibliography of publications by staff of the Atlantic Geoscience Centre to December 1984. Can. Data Rep. Hydrogr. Ocean Sci. No. 48: iv + 326p.

This is a report using the publication data base of the Atlantic Geoscience Centre (AGC). The data base serves, among other things, as a reference for correct citation information and as a record of publication, both for individual authors and for work under recognized projects of the Geological Survey of Canada (Department of Energy, Mines and Resources).

The data base contains information on publications written by employees. The employee may be a senior or junior author, and the publication may predate employment at AGC. The inclusion of publications which predate employment at AGC is dependent largely on whether the author reports them.

Citation information is compiled by librarians, from the actual publication or from reliable bibliographic sources. Abstracts are provided by the author and are optional. The bibliography is indexed by author and by GSC project. The indexes are produced by the computer programs. The author's affiliations are taken automatically from the most recent publications. The project indexing is based on identification with projects as described by the author: consequently, there is no standard for the references in the latter index and there are a number of publications that do not appear in it at all.

RESUMÉ

Fricker, A. and Samson, A. 1986. Bibliography of publications by staff of the Atlantic Geoscience Centre to December 1984. Can. Data Rep. Hydrogr. Ocean Sci. No. 48: iv + 326p.

Le présent rapport a été établi à l'aide des renseignements contenus dans la base de données du Centre géoscientifique de l'Atlantique (CGA). Cette base sert notamment d'outil de référence pour les mentions bibliographiques et de relevé de publications établi par auteur et par sujet d'étude s'inscrivant dans le cadre de projets connus entrepris par la Commission géologique du Canada (ministère de l'Energie, des Mines et des Ressources).

La base de données contient des renseignements sur les publications rédigées par des employés, qu'il s'agisse d'auteurs chevronnés ou novices et de publications rédigées avant ou pendant leur emploi au CGA. En ce qui concerne les publications rédigées avant l'entrée en fonction au CGA, c'est en grande partie à l'auteur que revient la responsabilité d'en faire mention afin qu'elles puissent figurer dans la base de données.

Les mentions bibliographiques sont compilées par les bibliothécaires, à partir des publications elles-mêmes ou de sources bibliographiques fiables. Les résumés émanent des auteurs et sont facultatifs. La bibliographie comporte un index par auteur et un index par projet du CGA. Ces index sont produits par l'ordinateur. Les mentions relatives à l'auteur sont tirées automatiquement de ses publications les plus récentes. L'index par projet est fondé sur les renseignements donnés par l'auteur quant à sa contribution au projet. Par conséquent, les références qui y apparaissent ne répondent pas à une norme; par ailleurs, un certain nombre de publications n'y figurent pas du tout.

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Adams, A.L., Comeau, E.J., Grant, A.C. 1966. Halifax harbour tunnel feasibility study. *Canadian Hydrographic Service Field Sheets* 4139a, 4139b: 2 maps.

Bathymetric data were obtained in a feasibility study for a tunnel under Halifax harbour. The field sheet presentation of results included track plot, bathymetric contours, and four maps. The maps were: (1) depth to base of soft surface mud; (2) isopach of soft surface mud; (3) depth to bedrock; and (4) isopach unconsolidated material. A geologic cross-section was also included.

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Five vibrocores taken in the Minas Basin have shown that the tides in the Bay of Fundy have been increasing progressively over the last 5000 years.

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The Bedford Institute Sedimentation Tube - B.I.S.T. may give a rapid, more accurate analysis of sand material, a good alternative to sieving.

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Amos, C.L., Buckley, D.E., Daborn, G.R., Dalrymple, R.W., McCann, S.B., Risk, M.J. 1980. Geomorphology and sedimentology of the Bay of Fundy. Halifax '80: Geological Association of Canada/Mineralogical Association of Canada Joint Annual Meeting, Field Trip Guidebook 23. 82p.

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The guide assigns 276 genera of fossil dinoflagellates to the orders Peridiniales, Dinophysiales and Gymnodiniales. The Peridiniales are further subdivided into four suborders comprising 31 families. Each genus is illustrated by a line drawing at a standard magnification based in most cases on the illustration and description of the type species and holotype.

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Description of benthonic and planktonic Eocene and Late Oligocene Foraminiferal faunas. The Eocene is subdivided into four zones. Upper Eocene foraminiferal faunas are described for the first time from the Appennines.

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Description of benthonic and planktonic foraminiferal faunas from the Tortonian and late Pliocene.

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First report on the biostratigraphy and paleoecology of Italian Paleogene ostracoda. Ranges of ostracod species of the Possagno and Brendola sections are given and compared with those of France and other countries.

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Illustrates the proposed foraminiferal zonation (23 zones from the middle Jurassic to late Miocene) and the ostracod zonation (11 zones from the middle Jurassic to latest Cretaceous) of the Scotian Shelf and western Grand Banks. The zonations are based on the biostratigraphic study of the wells Cree E-35, Mohawk B-93, Naskapi N-30, Onondaga E-84, Sable Island C-67 and Puffin B-90.

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Biostratigraphic data on the ostracoda from the above section. Ranges of ostracod species from the Possagno section are compared with those of France and elsewhere.

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Ascoli, P. 1975. Mesozoic and Cenozoic foraminiferal zonation of the Scotian Shelf [abstract]. In: Abstracts, Benthonics '75. Halifax: Dalhousie Univ., etc. P.4.

A benthonic foraminifera biozonation of the Scotian Shelf and SW Grand Banks, comprising twenty informal calcareous foraminifera zones from Bathonian to late Miocene and fourteen arenaceous foraminifera zones from Bathonian to early Eocene, is here proposed.

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Ascoli, P. 1976. Foraminiferal and ostracod biostratigraphy of the Mesozoic-Cenozoic, Scotian Shelf, Atlantic Canada. In: International Symposium on Benthonic Foraminifera of Continental Margins (1st : 1975 : Halifax), ed., C.T. Schafer and B.R. Pelletier. Maritime Sediments Special Publication 1: 653-771.

A threefold planktonic/benthonic zonation is proposed for the Jurassic-Tertiary of the Scotian Shelf. The presence of numerous European species in the Jurassic and Cretaceous highlights the affinity between European and Scotian Shelf assemblages. Some of these ubiquitous taxa appear to have potential as trans-Atlantic stratigraphic markers.

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This is a review of the volume Aspects of Ecology and Zoogeography of Recent and Fossil Ostracoda which collects the 51 papers presented at the 6th International Symposium on Ostracods, Saalfelden (Salzburg), July 30 - August 8, 1976.

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The author's 1977 foraminiferal and ostracod biozonation of the Scotian Shelf has been updated and refined in the late Jurassic and extended to the East Newfoundland Basin of the Grand Banks. Planktonic foraminifera delineate one assemblage zone of Callovian-Oxfordian age; calcareous benthonic foraminifera delineate three zones of Oxfordian, Kimmeridgian and Tithonian age; arenaceous benthonic foraminifera delineate two zones of Oxfordian-Early Kimmeridgian and late Kimmeridgian-Tithonian.

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The marine microfossil record of the Mesozoic-Cenozoic wedge, offshore eastern Canada reflects broad paleogeographic, eustatic and paleo-oceanographic trends. Stratigraphic resolution is only limited by the spacing and quality of samples. The foraminiferal and dinoflagellate zonations are reasonably calibrated.

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Aumento, F., Loncarevic, B.D. 1969. The Mid-Atlantic Ridge near 45°N; III. Bald Mountain. Canadian Journal of Earth Sciences 6(1): 11-23. (BIO Contribution No. 137)

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Aumento, F., Loncarevic, B.D., Ross, D.I. 1971. Hudson geotraverse: Geology of the Mid-Atlantic Ridge at 45°N. Philosophical transactions of the Royal Society of London, Series A 268: 623-650. (BIO Contribution No. 203)

67
Austin, G.H., Howie, R.D. 1973. Regional geology of offshore eastern Canada. In: Earth Science Symposium on Offshore Eastern Canada (1971 : Ottawa), ed., P.J. Hood. Geological Survey of Canada Paper 71-23: 73-107.

Encompasses Labrador Shelf to the Gulf of Maine, and includes a history of exploration, regional geology, tectonic history, isopach maps based on velocity layers, cross sections and hydrocarbon occurrences. Also presents the data in light of plate tectonic reconstructions.

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Baggeroer, A.B., Falconer, R. 1982. Array refraction profiles and crustal models of the Canada Basin. Journal of Geophysical Research 87(B7): 5461-5476.

Seismic refraction studies using the MIT hydrophone array and the BIO ocean bottom seismometer are described from the Canada Basin. A sedimentary column 4 to 5.5 km thick with an average velocity of 2.7 km/sec was measured. The velocity of basement or a carbonate layer was 4.9 km/sec. Its thickness was 4 to 5.5 km. No layer 3 velocities were measured. Mantle velocity of 7.7 to 7.9 km/sec were measured 14 to 16 km below the water surface.

69
Bamber, E.W., Barss, M.S. 1968. Stratigraphy and palynology of a Permian section, Tatonduk River, Yukon Territory. Geological Survey of Canada Paper 68-1b: 7.

The Tatonduk River sequence can be correlated with other sections in Alaska, using marine fauna and spores. Reworked Devonian and early Carboniferous spores are useful for interpretating the stratigraphy setting.

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Barnes, N.E., Piper, D.J.W. 1978. Late Quaternary geological history of Mahone Bay, Nova Scotia. Canadian Journal of Earth Sciences 15(4): 586-593.

71
Barrett, D.L., Berry, M., Blanchard, J.E., Keen, M.J., McAllister, R.E. 1964. Seismic studies on the Eastern Seaboard of Canada: The Atlantic coast of Nova Scotia. Canadian Journal of Earth Sciences 1(1): 10-22.

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Barrett, D.L., Heffler, D.E., Keen, C.E. 1977. Ocean bottom seismometer developments. Geological Survey of Canada Paper 77-1B: 129-132.

Several seismic refraction experiments were conducted using OBS's of Lamont Doherty Observatory design, the results from which we formulated specifications of OBS's to be used at Bedford Institute. We purchased 2 units from the University of Hawaii and after modifying the instruments conducted experiments off the west coast of Canada. The results and comments on the quality of data are presented.

73
Barrett, D.L., Keen, C.E. 1975. Lineations in the magnetic quiet zone of the northwest Atlantic. Nature 253(5491): 423-425. (BIO Contribution No. 474)

A magnetic survey in an area 70 x 150km shows that basement anomalies are lineated parallel to the quiet zone boundary. Two narrow zones of reversed polarity are evident implying that the quiet zone boundary is an isochron separating a period of rapid geomagnetic reversals from a period in which few reversals occurred.

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Barrett, D.L., Keen, C.E. 1976. Mesozoic magnetic lineations, the magnetic quiet zone, and sea floor spreading in the northwest Atlantic. Journal of Geophysical Research 81(26): 4875-4884.

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Barrett, D.L., Keen, C.E. 1978. Ocean bottom seismometer studies of the crust near the Orphan Knoll and Flemish Cap continental fragments [abstract]. Eos; Transactions, American Geophysical Union 59(4): 322.

76
Barrett, D.L., Keen, C.E., Moon, W.D. 1972. Real time dereverberation and signal processing of marine seismic reflection profiles. In: IEEE International Conference on Engineering in the Ocean Environment (1972 : Newport, Rhode Island), Record. New York: IEEE. P.544-549.

A real time dereverberator was tested in conjunction with a novel seismic reflection system in an attempt to eliminate multiples. The dereverberated records expose real events which are otherwise masked by multiples.

77
Barrett, D.L., Manchester, K.S. 1969. Crustal structure in Baffin Bay and Davis Strait from magnetometer surveys [abstract]. Eos, Transactions, American Geophysical Union 50(4): 135.

78
Barrett, D.L., Purdy, G.M. 1979. IPOD survey area AT-6: Seismic refraction results. In: Initial Reports of the Deep Sea Drilling Project, W.G. Melson, P.D. Rabinowitz et al. Washington: U.S. Government Printing Office. V.45: 49-53. (Woods Hole Contribution 4004)

Seismic refraction experiments using OBS and surface sonobouys were carried out at three locations within the site 6 survey area. On the basis of these results, a best drilling site was selected.

79
Barrie, C.Q., Piper, D.J.W. 1982. Late Quaternary marine geology of Makkovik Bay, Labrador. Geological Survey of Canada Paper 81-17. 37p.

80
Barrie, J.V., Lewis, C.F.M., Fader, G.B., King, L.H. 1984. Seabed processes on the northeastern Grand Banks of Newfoundland; modern reworking of relict sediments. In: *Sedimentation on High-Latitude Continental Shelves*, ed., B.D. Bornhold and A. Guilcher. *Marine Geology* 57(1/4): 209-227.

81
Barrie, V., Lewis, M. 1980. Iceberg grounding studies. *C-Core News* 5(1): 7-8.

A popular account of the joint GSC/C-Core studies of iceberg scouring in northern and central Labrador Shelf. Ice scours were recorded on the seabed with side-scan sonar and Huntec seismic systems along regional cross-shelf lines and in 2 detailed survey areas - on Saglek and Makkovik banks. Cores and bottom photographs augmented the data from latter two areas; local sonar/seismic surveys were also conducted around 5 icebergs, at least 2 of which were grounded.

82
Barrie, W.B., Bornhold, B.D., Hodgson, D.A., Jubb, R.G., McLaren, P., Taylor, R.B. 1978. Coastal reconnaissance for marine terminal planning in the high Arctic; V.1. Main report. *Geological Survey of Canada Open File* 633. 328p.

83
Barrie, W., McLaren, P. 1979. Coastal studies by the Geological Survey of Canada for oil spill countermeasures planning: Labrador and eastern Lancaster Sound. In: *Arctic Marine Oil Spill Program Technical Seminar, (1979 : Edmonton), Proceedings*. [Ottawa]: Fisheries and Environment Canada. P.267-271.

84
Barss, M.S. 1966. Studies on Carboniferous palynology. *Geological Survey of Canada Paper* 66-2: 59.

85
Barss, M.S. 1967. Illustrations of Canadian fossils - Carboniferous and Permian spores of Canada. *Geological Survey of Canada Paper* 67-11: 94.

86
Barss, M.S. 1968. List, age and location of spore samples identified, Appendix B. In: *Stratigraphy and Spore Assemblages, Moncton Map Area, New Brunswick*, P.A. Carr. *Geological Survey of Canada Paper* 67-29: 41-47.

The appendix includes palynological age datings of numerous samples that form the basis for geological interpretations made in the report.

87
Barss, M.S. 1969. Biostratigraphic zonation of the Horton Group by means of fossil spores. Geological Survey of Canada Paper 69-1b: 4.

Discusses a possible fourfold zonation of the Horton Group based on spores. One of the zones appears to be Devonian. The proposed zonation allows correlation between sections.

88
Barss, M.S. 1969. Part II, palynology of Tatonduk River section. In: Stratigraphy and Palynology of a Permian Section, Tatonduk River, Yukon Territory, E.W. Bamber and M.S. Barss. Geological Survey of Canada Paper 68-18: 11-19.

Part II - Identification of palynomorphs and comparison with Permian assemblages from U.S.A. and Europe; range chart of species identified and two plates of illustrations including reworked Carboniferous and Devonian types.

89
Barss, M.S. 1972. A problem in Pennsylvanian-Permian palynology of Yukon Territory. Geoscience and Man 4: 67-71.

Spores from eight surface and borehole sections are described. The spores and associated foraminifers and brachiopods confirm a Permian age. A similar assemblage associated with brachiopods and fusulinids of middle Pennsylvanian age indicates a discrepancy in age between the spore and the marine fauna. This discrepancy is discussed and several explanations offered.

90
Barss, M.S. 1974. Palynological zonation of the Carboniferous and Permian rocks of the Atlantic provinces. Geological Survey of Canada Paper 74-1b: 135-136.

The Carboniferous biostratigraphy of three Grand Banks wells in which the Carboniferous is unconformably overlain by Cretaceous sediments, is presented in detail. Samples from the Terrenceville area, Newfoundland, dated previously on meagre plant evidence as Devonian, are dated and correlated with the upper Tournaisian Horton Group type section.

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Barss, M.S. 1977. Report on palynological analysis of MacDougall core hole 1A; Appendix 2. In: Geological Studies and Evaluation of MacDougall Core Hole 1A, Western Prince Edward Island, R.D. Howie. Geological Survey of Canada Paper 77-20: 21-22.

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Barss, M.S. 1980. The Pennsylvanian-Permian boundary in Canada [abstract].

In: Abstracts of the Proceedings of the Annual Meeting of the American Association of Stratigraphic Palynologists (11th : 1978 : Phoenix). Palynology 4: 234.

A discussion of the palynological recognition of Pennsylvanian-Permian boundary.

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Barss, M.S. 1983. Computerizing the palynological literature. BIO Review '83: 35-36.

94
Barss, M.S., Bujak, J.P., Wade, J.A., Williams, G.L. 1980. Age, stratigraphy, organic matter type and colour, and hydrocarbon occurrences in 47 wells, offshore eastern Canada (Scotian Shelf and Grand Banks, Newfoundland). Geological Survey of Canada Open File 714. 6p.

This open file report presents details of organic matter type, TAI (thermal alteration index) age, stratigraphy, hydrocarbon shows and percent total organic carbon in 47 wells from offshore eastern Canada. The areas included in the present study are the Scotian Shelf and the Grand Banks of Newfoundland (42°N to 59°N: 48°W to 65°W).

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Barss, M.S., Bujak, J.P., Williams, G.L. 1979. A pragmatic approach to visual kerogen studies [abstract]. American Association of Stratigraphic Palynologists, Annual Meeting, Abstracts 12: 4.

96
Barss, M.S., Bujak, J.P., Williams, G.L. 1979. Palynological zonation and correlation of sixty-seven wells, eastern Canada. Geological Survey of Canada Paper 78-24. 118p. (BIO Contribution No. 920)

The palynological zonation established for the Paleozoic, Mesozoic, and Cenozoic of offshore eastern Canada, provides the basis for the zonation and correlation of 67 wells. The zones are equated with the standard European stage terminology.

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Barss, M.S., Bujak, J.P., Williams, G.L. 1979. Visual kerogen analysis: The time for standardization? [abstract]. In: Abstracts of the Proceedings of the Annual Meeting of the American Association of Stratigraphic Palynologists (10th : 1977 : Tulsa). Palynology 3: 278.

Abstract on the need for standardisation of terminology for kerogen analysis.

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Barss, M.S., Bujak, J.P., Williams, G.L. 1981. Organic matter type and

hydrocarbon occurrences on the eastern Canadian margin [abstract]. American Association of Petroleum Geologists Bulletin 65(9): 1659.

The type of maturation of organic matter in the Mesozoic-Cenozoic of offshore eastern Canada has determined the nature of the hydrocarbons generated.

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Barss, M.S., Crilley, B.J. 1976. A mounting medium for palynological residues. Geological Survey of Canada Paper 76-1B: 131-132.

Describes the formula and preparation technique for a palynological mounting medium developed to replace a commercial medium no longer available.

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Barss, M.S., Davies, E.H., Fricker, A., Williams, G.L. 1985. Palynology data management at the Atlantic Geoscience Centre [abstract]. In: Abstracts of the Proceedings of the Annual Meeting of the American Association of Stratigraphic Palynologists (17th : 1984 : Arlington, VA.). Palynology 9: 235-236.

Development of two databases for handling palynological information. Some of the applications and products are discussed.

101
Barss, M.S., Davies, E.H., Williams, G.L. 1984. BIOSTRAT: Son of Rangefile [abstract]. In: Atlantic Geoscience Society Colloquium on Current Research in the Atlantic Provinces (1984 : [Amherst, N.S.]), Abstracts. [s.l.]: The Colloquium. P.4-5. Also published in Maritime Sediments and Atlantic Geology 20(2): 87.

BIOSTRAT, palynological data base on east coast offshore wells, is now performing according to specifications.

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Barss, M.S., Davies, E.H., Williams, G.L. 1984. Palynological data management at the Atlantic Geoscience Centre [abstract]. In: International Palynological Conference (6th : 1984 : Calgary) Abstracts: 7.

The history of the developments to the online biostratigraphic data base as used by the palynologists is reviewed.

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Barss, M.S., Hacquebard, P.A. 1967. Age and stratigraphy of the Pictou Group in the Maritime provinces as revealed by fossil spores. Geological Survey of Canada Paper 67-1B: 53-54.

104
Barss, M.S., Hacquebard, P.A. 1967. Age and stratigraphy of the Pictou Group

in the Maritime provinces as revealed by fossil spores. In: *Collected Papers on Geology of the Atlantic Region*, ed., W.R. Neale and H. Williams. *Geological Association of Canada Special Paper* 4: 267-282.

Precise correlations of the uppermost Paleozoic rocks in the Maritimes are based on the recognition of five spore zones in 20 sections. For many areas the proper assignment of these rocks, which reach a maximum thickness of some 8500 feet, was hitherto unknown. The study illustrates the similarity of the stratigraphy of the Upper Carboniferous in the Maritimes, Europe and U.S.A.

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Barss, M.S., Hacquebard, P.A., Howie, R.D. 1962. Palynology and stratigraphy of some upper Pennsylvanian and Permian rocks of the Maritime provinces, Canada [abstract]. *Pollen et Spores* 4(2): 331.

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Barss, M.S., Hacquebard, P.A., Howie, R.D. 1963. Palynology and stratigraphy of some upper Pennsylvanian and Permian rocks of the Maritime provinces. *Geological Survey of Canada Paper* 63-3. 13p.

A biostratigraphic study of strata of the Pictou Group in the Maritime provinces has permitted the recognition of five assemblage zones ranging in age from Westphalian C to Permian. A range chart of 63 species is included.

107
Barss, M.S., Williams, G.L. 1973. Palynology and nannofossil processing techniques. *Geological Survey of Canada Paper* 73-26. 25p.

A processing manual for palynology and nannofossil processing. The procedures described permit the rapid production of a large number of high quality preparations. Also included is an appendix listing equipment and formulae for solutions and chemicals required.

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Barss, M.S., Williams, G.L. 1983. Alphabetical listing of fossil dinocyst species. *Canadian Technical Report of Hydrography and Ocean Sciences* 23. 48p.

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Beaumont, C., Hyndman, R.D., Keen, M.J. 1970. A new technique for the installation of tiltmeters. *Earth and Planetary Science Letters* 8: 337-340.

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Beaumont, C., Keen, C.E., Boutilier, R. 1982. A comparison of foreland and rift margin sedimentary basins. *Philosophical Transactions of the Royal Society of London, Series A*, 305: 295-317.

This paper describes the geological consequence of extension and regional isostatic loading of rifted margins, and of the "leaf spring" model of foreland basins, using the Nova Scotia margin and Alberta basins as examples. Superposition of these two basin types as in the Appalachian basin is also described.

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Beaumont, C., Keen, C.E., Boutilier, R. 1982. On the evolution of rifted continental margins: Comparison of models and observations for the Nova Scotian margin. Geophysical Journal of the Royal Astronomical Society 70(3): 667-715.

This paper describes theory, methodology and geological results of numerical models of rifted margin evolution, with specific references to the Nova Scotian margin.

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Beaumont, C., Quinlan, G. 1982. The deglaciation of Atlantic Canada as reconstructed from the postglacial relative sea level record. Canadian Journal of Earth Sciences 19(12): 2232-2246.

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Beaumont, C., Quinlan, G. 1983. Appalachian thrusting, lithospheric flexure and the Paleozoic stratigraphy of the eastern interior, U.S.A. [abstract]. Geological Association of Canada/Mineralogical Association of Canada/Canadian Geophysical Union Program with Abstracts 8: A5.

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Bell, J.S. 1967. The geology of the Camatagua area, Aragua, Venezuela. Ph.D. Thesis, Princeton University, Princeton, NJ USA. 282p.

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Bell, J.S. 1971. Tectonic evolution of the central part of the Venezuelan coast ranges. Geological Society of America Memoir 130: 107-118.

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Bell, J.S. 1972. Geotectonic evolution of the southern Caribbean area. Geological Society of America Memoir 132: 369-386.

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Bell, J.S. 1974. Late Paleozoic orogeny in the northern Yukon. In: Canadian Arctic Geology; Proceedings of the Symposium on the Geology of the Canadian Arctic, ed., J.D. Aitken and D.J. Glass. Saskatoon, Sask: Geological Association of Canada and the Canadian Society of Petroleum Geologists. P.23-38.

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Bell, J.S. 1974. Venezuelan coast ranges. In: Mesozoic-Cenozoic Orogenic Belts; Data for Orogenic Studies, ed., A.M. Spencer. Edinburgh,

Scotland: Scottish Academic Press. P.683-703. (The Geological Society; Special Publication 4)

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Bell, J.S. 1984. Dynamics of oil and gas accumulations, by A. Perrodon [book review]. *Episodes* 7(1): 72-73.

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Bell, J.S. 1984. Stress relief bed slip in the Canadian Rocky Mountains [abstract]. In: *Joint Programme with Abstracts; Annual Congress, Canadian Meteorological and Oceanographic Society (18th : 1984 : Halifax, N.S.) [and] Annual Meeting, Canadian Geophysical Union (11th : 1984: Halifax, N.S.) = Programme Conjoint avec Résumés; Congrès Annuelle, Société Canadienne de Métérologie et d'Océanographie (18e : 1984 : Halifax, N.-E.) [et] Réunion Annuelle, l'Union Canadienne de Géophysique (11e : 1984 : Halifax, N.-E.)*, ed., E.J. Truhlar. Halifax: The Conference. P.48.

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Bell, J.S., Gough, D.I. 1979. Northeast-southwest compressive stress in Alberta. *Earth and Planetary Science Letters* 45(2): 475-382.

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Bell, J.S., Gough, D.I., Fordjor, C.K., Babcock, E.A. 1984. Stress orientations from breakouts and their application in the western Canadian basin and Rocky Mountain foothills [abstract]. In: *Joint Programme with Abstracts; Annual Congress, Canadian Meteorological and Oceanographic Society (18th : 1984 : Halifax, N.S.) [and] Annual Meeting, Canadian Geophysical Union (11th: 1984: Halifax, N.S.) = Programme Conjoint avec Résumés; Congrès Annuel, Société Canadienne de Météorologie et d'Océanographie (18e : 1984 : Halifax, N.-E.) [et] Réunion Annuelle, l'Union Canadienne de Géophysique (11e : 1984: Halifax, N.-E.)*, ed., E.J. Truhlar. Halifax: The Conference. P.45.

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Benson, W.E., Sheridan, R.E., Enos, P., Freeman, T., Gradstein, F.M., Murdmaa, I.O., Pastouret, L. 1978. Site 392: South rim of Blake Nose. In: *Initial Reports of the Deep Sea Drilling Project*, W.E. Benson, R.E. Sheridan, et al. Washington: U.S. Government Printing Office. V.44: 337-393. (BIO Contribution No. 810)

During Leg 44 of the Deep Sea Drilling Project five sites (388-392) comprising 11 holes were drilled in the western North Atlantic Ocean off the east coast of the United States. Water depth at the sites ranges from about 2600 to 5000 metres. A total of 1342.5 metres was cored, of which 546.8 metres were recovered (41%) in 149 cores. Sediments range from late Jurassic through Quaternary although no Cenomanian-Santonian, upper Eocene(?) Oligocene, and Pliocene sediments were found.

124
Benson, W.E., Sheridan, R.E., Enos, P., Freeman, T., Gradstein, F.M, Murdmaa, I.O., Pastouret, L., Schmidt, R.R., Stuermer, D.H., Weaver, F.M., Worstell, P. 1978. Site 388: Lower continental rise hills. In: Initial Reports of the Deep Sea Drilling Project, W.E. Benson, R.E. Sheridan, et al. Washington: U.S. Government Printing Office. V.44: 23-67. (BIO Contribution No. 810)

During Leg 44 of the Deep Sea Drilling Project five sites (388-392) comprising 11 holes were drilled in the western North Atlantic Ocean off the east coast of the United States. Water depth at the sites ranges from about 2600 to 5000 metres. A total of 1342.5 metres was cored, of which 546.8 metres were recovered (41%) in 149 cores. Sediments range from late Jurassic through Quaternary although no Cenomanian-Santonian, upper Eocene(?) Oligocene, and Pliocene sediments were found.

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Benson, W.E., Sheridan, R.E., Enos, P., Freeman, T., Gradstein, F.M., Murdmaa, I.O., Pastouret, L., Schmidt, R.R., Stuermer, D.H., Weaver, F.M., Worstell, P. 1978. Site 391: Blake-Bahama Basin. In: Initial Reports of the Deep Sea Drilling Project, W.E. Benson, R.E. Sheridan, et al. Washington: U.S. Government Printing Office. V.44: 153-336. (BIO Contribution No. 810)

During Leg 44 of the Deep Sea Drilling Project five sites (388-392) comprising 11 holes were drilled in the western North Atlantic Ocean off the east coast of the United States. Water depth at the sites ranges from about 2600 to 5000 metres. A total of 1342.5 metres was cored, of which 546.8 metres were recoved (41%) in 149 cores. Sediments range from late Jurassic through Quaternary although no Cenomanian-Santonian, upper Eocene(?) Oligocene, and Pliocene sediments were found.

126
Benson, W.E., Sheridan, R.E., Enos, p., Freeman, T., Gradstein, F.M., Murdmaa, I.O., Pastouret, L., Schmidt, R.R., Stuermer, D.H., Weaver, F.M., Worstell, P. 1978. Sites 389 and 390: North rim of Blake Nose. In: Initial Reports of the Deep Sea Drilling Project, W.E. Benson, R.E. Sheridan, et al. Washington: U.S. Government Printing Office. V.44: 69-151. (BIO Contribution No. 810)

During Leg 44 of the Deep Sea Drilling Project five sites (388-392) comprising 11 holes were drilled in the western North Atlantic Ocean off the east coast of the United States. Water depth at the sites ranges from about 2600 to 5000 metres. A total of 1342.5 metres was cored, of which 546.8 metres were recovered (41%) in 149 cores. Sediments range from late Jurassic through Quaternary although no Cenomanian-Santonian, upper Eocene(?) Oligocene, and Pliocene sediments were found.

127
Benson, W.E., Sheridan, R.E., Enos, P., [Freeman, T.], [Gradstein, F.M.], [Murdmaa, I.O.], [Pastouret, L.], [Schmidt, R.R.], [Stuermer, D.H.], [Weaver, F.M.], [Worstell, P.] 1975. Preliminary results from Leg 44 Deep Sea Drilling Project in western North Atlantic [abstract]. American Association of Petroleum Geologists Bulletin 60(4): 649.

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Berger, J., Cok, A., Blanchard, J.E., Keen, M.J. 1966. Morphological and geophysical studies on the eastern seaboard of Canada: The Nova Scotian Shelf. In: Continental Drift, ed., G.D. Garland. Toronto: University of Toronto Press; Royal Society of Canada. P.102-113. (Royal Society of Canada Special Publication No. 9)

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Berger, W.H., Piper, D.J.W. 1972. Planktonic foraminifera: differential settling, dissolution, and redeposition. Limnology and Oceanography 17(2): 275-287.

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Berggren, W.A., Gradstein, F.M. 1981. Agglutinated benthonic foraminiferal assemblages in the Palaeogene of the central North Sea: their biostratigraphic and depositional environmental significance. In: The Petroleum Geology of the Continental Shelf of Northwest Europe, ed., L.V. Illing and G.D. Hobson. London: Heyden and Son. P.282-285. (BIO Contribution No. 923)

Geological significance of agglutinated foraminiferal facies; correlation of zonations to stratotypes; synthesis figures of Paleogene events.

132
Bewers, J.M., MacAulay, I.D., Sundby, B., Buckley, D.E. 1975. Data are for looking at, or quality control through interpretation. In: Water Quality Parameters. Philadelphia: American Society for Testing and Materials. P.550-565. (ASTM Special Technical Publication 573) (BIO Contribution No. 500)

A system of preliminary data inspection and interpretation is proposed as a method of providing corrective feedback to analytical and sampling operations in water quality programs. Data from the National Water Quality Data File (NAQUADAT) is used to demonstrate how the system enables faults in water quality operations to be detected and corrected.

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Be, A.W.H., Vilks, G., Lott, L. 1971. Winter distribution of planktonic foraminifera between the Grand Banks and the Caribbean. Micropaleontology 17(1): 31-42.

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Bhattacharyya, P.J., Hyndman, R.D., Keen, M.J. 1975. Bathymetric and magnetic studies on the Mid-Atlantic Ridge at 45°N. Canadian Journal of Earth Sciences 12(3): 337-346.

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Bhattacharyya, P.J., Ross, D.I. 1972. Mid-Atlantic Ridge near 45°N. Computer interpolation and contouring of bathymetry and magnetics. Marine Science Paper 11. 9p. (BIO Contribution No. 307)

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Biscarrat, P.A., de Lombares, G., Bidgood, E.T., Grant, A.C. 1975. Offshore Labrador bottom survey report August, 1972. Geological Survey of Canada Open File 247. 53p.

A side scan sonar survey on Hamilton Bank reveals numerous iceberg furrows of variable age and orientation.

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Blake, W. Jr., Lewis, C.F.M. 1975. Marine surficial geology; observations in the high Arctic. Geological Survey of Canada Paper 75-1A: 383-387.

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Blasco, S.M. 1984. A perspective on the distribution of subsea permafrost on the Canadian Beaufort continental shelf. In: Permafrost; International Conference (4th : 1983 : Fairbanks, Ak); Final Proceedings. Washington: National Academy Press. P.83-86.

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Blasco, S.M., Bornhold, B.D., Lewis, C.F.M. 1979. Preliminary results of surficial geology and geomorphology studies of the Lomonosov Ridge, central Arctic Basin. Geological Survey of Canada Paper 79-1C: 73-83.

Discussion of field operations used for the collection of subbottom and seismic reflection profiles, sediment samples, seabed photographs and plankton hauls from an ice floe to more clearly define the origin and geologic nature of the Lomonosov Ridge near the north geographic pole, and discussion of the preliminary results.

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Blasco, S.M., Lewis, C.F.M., Bornhold, B.D. 1980. Surficial geology and geomorphology of the Lomonosov Ridge [abstract]. Eos; Transactions, American Geophysical Union 61(17): 276.

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Bornhold, B.D., Lewis, C.F.M. 1976. Marine geology of western Lancaster Sound [abstract]. Geological Association of Canada, Program with Abstracts 1: 81.

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Bornhold, B.D., Lewis, C.F.M., Fenerty, N.E. 1975. Arctic marine surficial geology; AIDJEX 1975. Geological Survey of Canada Paper 75-1C: 79-84.

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Bowen, A.J., Normark, W.R., Piper, D.J.W. 1984. Modelling of turbidity currents on navy submarine fan, California continental borderland. Sedimentology 31(2): 169-185.

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Boyd, R., Forbes, D.L., Heffler, D.E. 1983. Fairweather sediment dispersal on the shoreface of the Nova Scotia Atlantic coast [abstract]. Eos; Transactions, American Geophysical Union 64(52): 1102.

In order to characterise the summer beach accretion process, RALPH was deployed in 10m depth on the shoreface seaward of Martinique Beach. The resulting data set indicates that Fairweather Beach and nearshore accretion results from active sediment.

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Boyd, R.W., Piper, D.J.W. 1976. Baffin Bay continental shelf clay mineralogy. Maritime Sediments 12(1): 17-18.

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Brideaux, W.W., Williams, G.L. 1975. Palynological analysis of Mesozoic-Cenzoic sediments of the Grand Banks and Scotian Shelf, Atlantic continental margin, Canada [abstract]. In: American Association of Stratigraphic Palynologists, Proceedings of the Annual Meeting (6th : 1973 : Anaheim, CA). Baton Rouge, LA: Louisiana State University, School of Geoscience. P.154. (Geoscience and Man 11)

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Brown, J.D., Rashid, M.A. 1975. Geotechnical properties of nearshore sediments of Canso Strait, Nova Scotia. Canadian Geotechnical Journal 12(1): 44-57. (BIO Contribution No. 451)

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Using fluorescence microscopy, it is possible to distinguish the indigenous and reworked populations in the Plio-Pleistocene and Holocene intervals of the Kopanoar M-13 well and to palynologically subdivide this part of the section. The underlying Miocene interval contains dinoflagellates known from Atlantic and North Pacific Deep Sea Drilling Project sites, so that the Kopanoar Miocene can be correlated with the standard nannoplankton (nn) and planktonic foraminiferal (n) zones.

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Acquired fluorescence is a valuable technique for determining the mature petroleum zone in exploratory wells.

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The geological highway map of Nova Scotia depicts the geology of the province in a manner that is easily understood by the non-geologist.

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Dinoflagellate cysts are abundant and diverse in the Eocene of southern England, with many species having restricted stratigraphic ranges. Thirteen dinoflagellate zones are formally proposed, three in the London Clay, five in the Bracklesham Beds, and five in the Barton Beds. This is the first proposed formal zonation and correlation of the Eocene of southern England. In the taxonomic section several new genera and species are described and illustrated.

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Correlation of the Jurassic foraminiferal and palynological zonation.

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Although fossil Dinoflagellate genera and species plots of world wide diversity are included in the paper, the latter is a much more sensitive parameter. From the Carnian to the recent, there have been definite trends with several lows and highs. Presumably the plots represent cyst-forming species only.

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Bujak, J.P., Williams, G.L. 1983. The evolution of dinoflagellates [abstract]. Geological Association of Canada/Mineralogical

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Canadian data for Ontario, Quebec, and Atlantic provinces.

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Carter, L. 1979. Significance of unstained and stained gravel on the Newfoundland continental slope and rise. *Journal of Sedimentary Petrology* 49(4): 1147-1158.

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Aluminum coating techniques are applied to improve the routine observation of nannofossils under the light microscope.

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Strong lunar semidiurnal component of tidal origin exists in the electric field measurements made on land immediately adjacent to the Bay of Fundy and to lesser extent in similar measurements made on the Atlantic coast of Canada. Magnetic measurements on the contrary do not show any pronounced tidal effect at either of these locations.

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Cole, F., Blakeney, C.P. 1983. Description and x-radiographs of the Baffin Fjord cores. In: Sedimentology of Arctic Fjords Experiment: HU 82-031 Data Report, Volume 1, ed., J.P.M. Syvitski and C.P. Blakeney. Canadian Data Report of Hydrography and Ocean Sciences 12. V.1: 12.1-12.96. Also published in Geological Survey of Canada Open File 960.

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Cranston, R.E., Buckley, D.E., Fitzgerald, R.A., Winters, G.V. 1981. Geochemical investigation of sediment and pore water samples from the northeast Pacific Ocean, off the coast of Califorina. Geological Survey of Canada Paper 81-1C: 55-61.

A 100km square study area of the sea floor off Cape Mendocino, California, currently under investigation as a low level nuclear waste disposal area, has been studied for a number of geological and chemical parameters. This report contains an initial summary of geochemical results from sediment and pore water samples collected at 4 locations in the study area.

247
Cranston, R., Emerson, S., Liss, P.S. 1978. Redox species in a reducing fjord: oxidation rate kinetics [abstract]. Eos; Transactions, American Geophysical Union 59(12): 1097.

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Cranston, R.E., Fitzgerald, R.A., Winters, G.V. 1974. Geochemical data from the Strait of Canso and Chedabucto Bay, Nova Scotia. BIO Data Series BI-D-74-3. 56p.

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Cranston, R.E., Fitzgerald, R.A., Winters, G.V. 1974. Geochemical data: Baie des Chaleurs. Bedford Institute of Oceanography Data Series BI-D-74-6. 22p.

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Cranston, R.E., Fitzgerald, R.A., Winters, G.V. 1975. Geochemical data: Bay of Fundy-Minas Basin. Bedford Institute of Oceanography Data Series BI-D-75-5. 24p.

This report is a compilation of the geochemical data obtained for water, suspended particulate and sediment samples from the Bay of Fundy and Minas Basin, collected September 22-28, 1971.

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Cranston, R.E., Fitzgerald, R.A., Winters, G.V. 1975. Geochemical data: LaHave River and estuary. Bedford Institute of Oceanography Data Series BI-D-75-4. 33p.

This report is a compilation of the geochemical data obtained for water, suspended particulate and sediment samples from the LaHave River and estuary, collected September 13-20, 1971.

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Cranston, R.E., Murray, J.W. 1978. Determination of chromium species in natural waters. Analytica Chimica Acta 99(2): 275-282. (BIO Contribution No. 776)

253
Cranston, R.E., Murray, J.W. 1978. Dissolved chromium species in seawater [abstract]. Eos; Transactions, American Geophysical Union 58(5): 306.

254
Cranston, R.E., Murray, J.W. 1980. Chromium species in the Columbia River and estuary. Limnology and Oceanography 25(6): 1104-1112.

The dominant form of chromium in the Columbia River and estuary is CrO_4^{2-}, with flocculation removing up to 28% of the dissolved chromium from solution for estuarine salinities in the range of 5/00.

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Cranston, R.E., Murray, J.W. 1980. Dissolved and particulate chromium in the Columbia River and estuary [abstract]. Eos; Transactions, American Geophysical Union 61(17): 269.

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Cranston, R.E., Stoffyn, M.A., Buckley, D.E. 1983. Sedimentary geochemistry of a potential radioactive waste disposal site in the Nares Abyssal Plain. Eos; Transactions, American Geophysical Union 64(45): 741.

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Creer, K.M., Anderson, T.W., Lewis, C.F.M. 1976. Late Quaternary geomagnetic stratigraphy recorded in Lake Erie sediments. Earth and Planetary Science Letters 31(1): 37-47.

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C-Core 1982. Iceberg grounding review from wellsite observations. Geological Survey of Canada Open File 880. 38p.

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Dainty, A.M., Keen, C.E., Keen, M.J., Blanchard, J.E. 1966. Review of geophysical evidence on crust and upper-mantle structure on the eastern seaboard of Canada. In: The Earth Beneath the Continents, ed., J.S. Steinhart, T.J. Smith. Washington, D.C.: American Geophysical Union. P.349-369. (American Geophysical Union Geophysical Monograph 10) (National Academy of Sciences - National Research Council Publication 1467)

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Dale, C.T., Haworth, R.T. 1979. High resolution reflection seismology studies on late Quaternary sediments of the northeast Newfoundland continental shelf. Geological Survey of Canada Paper 79-1B: 357-364.

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Dale, C.T., Haworth, R.T. 1979. High resolution seismology and surficial geological studies of the northeast Newfoundland shelf [abstract]. Geological Association of Canada - Mineralogical Association of Canada Joint Annual Meeting, Program with Abstracts 4: 45.

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Dalrymple, R.W., Amos, C.L., McCann, S.B. 1982. Beach and nearshore depositional environments of the Bay of Fundy and southern Gulf of St. Lawrence. [Hamilton, Ont.: International Association of Sedimentologists]. 116p. (International Congress on Sedimentology (11th: 1982: McMaster University, Hamilton, Ont.), Field Excursion Guide Book 6a)

263
Davey, R.J., Downie, C., Sarjeant, W.A.S., Williams, G.L. 1966. Fossil dinoflagellate cysts attributed to Baltisphaeridium. Bulletin of the British Museum (Natural History), Geology Suppl. 3. 157-175.

A realization that many hystrichospheres are fossil dinoflagellates resulted in re-interpretation of previous studies in which taxa had been assigned to the acritarchs.

264
Davey, R.J., Downie, C., Sarjeant, W.A.S., Williams, G.L. 1969. Appendix to "Studies on Mesozoic and Cainozoic Dinoflagellate cysts". Bulletin of the British Museum (Natural History), Geology Suppl. 3. 24p.

Transfer of numerous species to different genera to conform with modern concepts of classification.

265
Davey, R.J., Williams, G.L. 1966. The genera Hystrichosphaera and Achomosphaera. Bulletin of the British Museum (Natural History), Geology Suppl. 3. 28-52.

Application of modern morphological theories to these genera, resulting in their reclassification.

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Davey, R.J., Williams, G.L. 1966. The genus Hystrichosphaeridium and its allies. Bulletin of the British Museum (Natural History), Geology Suppl. 3. 53-106.

The genus Hystrichosphaeridium as defined by Deflandre is in reality several genera. This has necessitated emendation of this genus and the erection of several new genera of biostratigraphic significance. The tabulation patterns of the several genera are used for the first time as the basis for distinction.

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Davidson, C., Keen, M.J. 1963. Size analyses of turbidity current sediment. Nature 197(4865): 372-373.

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Davidson, S. 1984. SED1D: A sediment transport model for the continental

shelf. Geological Survey of Canada Open File 1113. 62p.

Modelling of sediment transport under the combined influence of waves and currents has continued with the development of a new one-dimensional model, SEDLD. The new model uses more accurate and efficient numerical methods than does the old version, as well as incorporating several theoretical modifications.

269
Davies, E.H. 1979. Jurassic and lower Cretaceous dinoflagellate cysts of the Sverdrup Basin, Arctic Canada; Taxonomy, biostratigraphy, chronostratigraphy. Ph.D. Thesis, University of Toronto, Toronto Ont. 591p.

270
Davies, E.H. 1979. The Jurassic-lower Cretaceous Dinoflagellate stratigraphy of the Sverdrup Basin, Arctic Canada; Savik to Deer Bay formations [abstract]. In: American Association of Stratigraphic Palynologists, Proceedings of the Annual Meeting (10th : 1977 : Tulsa, Okla). Palynology 3: 282.

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Davies, E.H. 1981. Archeopyle patterns in late Cretaceous peridiniaceans [abstract]. Palynology 5: 234.

272
Davies, E.H. 1983. The dinoflagellate oppel-zonation of the Jurassic-Lower Cretaceous sequence in the Sverdrup Basin, Arctic Canada. Geological Survey of Canada Bulletin 359. 59p.

Palynological analyses of Jurassic to Lower Cretaceous rocks of the Sverdrup Basin have allowed the recognition of 17 oppel-zones. Eighteen new species of dinoflagellate cysts are described. The stratigraphic interval studied includes the Savik-Jaeger complex, the Awingak-Ringnes deltaic complex and the "Deer Bay"- Mould Bay deltaic complex.

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Davies, E.H., Akande, S.O., Zentilli, M. 1984. Early Cretaceous deposits in the Gays River lead-zinc mine, Nova Scotia. Geological Survey of Canada Paper 84-1A: 353-358.

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Davies, E.H., Avery, M.P. 1984. A system for vitrinite reflectance analysis on dispersed organic matter for offshore eastern Canada. Geological Survey of Canada Paper 84-1A: 367-372.

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Davies, E.H., Bujak, J.P. 1983. Trans-Atlantic palynological correlations of the Early Jurassic [abstract]. In: American Association of

Stratigraphic Palynologists, Proceedings of the Annual Meeting (15th : 1982 : Dublin, Ireland), (Joint meeting with the Commission Internationale de Microflore du Paléozoique). Palynology 7: 238-239.

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Davies, E.H., Bujak, J.P., Williams, G.L. 1981. Let's take dinoflagellates off the shelf [abstract]. Geological Association of Canada, Abstracts with Programs 6: A-13.

277
Davies, E.H., Bujak, J.P., Williams, G.L. 1982. Are dinoflagellates paleoenvironmentalists? [abstract]. In: North American Paleontological Convention (3rd : 1982 : Montreal, Que.), Abstracts. Journal of Paleontology 56(2-supplement): 7-8.

Paleoenvironmental usefulness of fossil dinoflagellates can be assigned one of four categories.

278
Davies, E.H., Bujak, J.P., Williams, G.L. 1982. The application of dinoflagellates to paleoenvironmental problems. In: Proceedings, North American Paleontological Convention (3rd : 1982 : Montreal), ed., B. Mamet and M.J. Copeland. Toronto: The Convention. V.1: 125-131.

The use of dinoflagellates for paleoenvironmental studies can be grouped into one of the following categories: (1) absolute abundance; (2) relative abundances with respect to other palynomorphs; (3) species diversity and dominance; and (4) relative abundances of individual taxa. With this approach a certain logic can be applied to previously published studies.

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Davies, E.H., Norris, G. 1976. Ultrastructural analysis of exine and apertures in angiospermous colpoid pollen (Albian, Oklahoma). Pollen et Spores 18(1): 129-144.

Scanning electron microscopy on colpoid angiospermous pollen from the Albian of Oklahoma supports the theory of derivation of equatorial apertures from polychotomosulcate apertures. A polyphyletic origin of angiospermous pollen is suggested based on ultrastructural considerations.

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Davies, E.H., Norris, G. 1978. Dinoflagellate biostratigraphy of Jurassic - lower Cretaceous shales, Sverdrup Basin, Arctic Canada. In: Geological Association of Canada/Mineralogical Association of Canada/Geological Society of America, Joint Annual Meeting (1978 : Toronto, Ont). Geological Society of America, Program with Abstracts 10(7): 386.

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Davies, E.H., Norris, G. 1980. Latitudinal variations in encystment modes and species diversity in Jurassic dinoflagellates. In: The continental crust and its mineral deposits, ed., D.W. Strangway. Waterloo, Ont: Geological Association of Canada. P.361-373. (Geological Association of Canada Special Paper 20)

Early Jurassic dinoflagellate cyst assemblages from Arctic Canada are compared with those from offshore eastern Canada and other locations. Maximum diversity and marine transgressive peaks in the Sverdrup Basin tend to coincide. A simple relationship between paleolatitude, encystment modes and diversity not substantiated for the Jurassic. Facies relationships and other factors are important controls on assemblage characteristics.

282
Dean, W.E., Gardner, J.V., Jansa, L.F., Cepek, P., Seibold, E. 1978. Cyclic sedimentation along the continental margin of northwest Africa. In: Initial Reports of the Deep Sea Drilling Project, Y. Lancelot, E. Seibold, et al. Washington: U.S. Government Printing Office. V.41: 965-989. (BIO Contribution No. 817)

Long sequences of cyclic sediments cored on the Atlantic continental margin off northwest Africa are the result of turbidite deposition, variation of pH and Eh, and carbonate dissolution. The turbidites represent a period of 10,000 yr and the redox cycle 30-50,000 yr. The latter are discussed in relation to the paleoclimatic changes.

283
Deonarine, B. 1979. Foraminiferal distribution in two Nova Scotia marshes. Maritime Sediments 15(2/3): 35-45.

Thirty sediment samples from marshes at Peggy's Cove and Clementsport, Nova Scotia, were examined and nine benthonic foraminifera species identified. Agglutinated tests form 98% of the total foraminiferal population. *Trochammina macrescens*, the dominant form in upper marsh environments, is gradually replaced by *Miliammina fusca* as lower marsh conditions are developed. *M. fusca* comprises 97% of the total population in the lower marsh environments sampled in this study.

284
Deonarine, B., Vilks, G. 1977. Foraminifera in sediment cores from Labrador Shelf. Geological Survey of Canada Open File 485. 115p.

The report contains a quantitative list of foraminifera from 21 sediment cores.

285
Dixon, J., McNeil, D.H., Dietrich, J., Bujak, J.P., Davies, E.H. 1985. Geology and biostratigraphy of the Dome Gulf et al. Hunt Kopanoar M-13

well, Beaufort Sea. *Geological Survey of Canada Paper* 82-13. 28p. and 2 charts.

286

Dodds, D.J. 1980. Attenuation estimates from high resolution subbottom profiler echoes. In: *Bottom-Interacting Ocean Acoustics*, ed., W.A. Kuperman and F.B. Jensen. New York: Plenum Press. P.173-191. (NATO Conference Series; IV. Marine Sciences 5) (BIO Contribution No. 907)

The attenuation constant of a sediment layer is calculated by examining the spectrum of a reflection from the bottom of the layer.

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Doeven, P.H. 1983. Cretaceous nannofossil stratigraphy and paleoecology of the northwestern Atlantic. *Geological Survey of Canada Bulletin* 356. 69p.

Based on conventional and probabilistic techniques, a nannofossil zonation has been erected and used to correlate Albian through Maastrichtian rocks in 17 wells, offshore eastern Canada.

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Doeven, P.H., Gradstein, F.M. 1981. A quantitative nannofossil range chart [abstract]. *Geological Association of Canada/Mineralogical Association of Canada/Canadian Geophysical Union, Program with Abstracts* 6: A15.

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Doeven, P.H., Gradstein, F.M. [1980]. Late Cretaceous nannofossil stratigraphy and aspects of carbonate sedimentation on the Canadian Atlantic margin [abstract]. *Geological Association of Canada Annual Meeting Abstracts* 5: 49.

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Doeven, P.H., Gradstein, F.M., Jackson, A., Agterberg, F.P., Nel, L.D. 1982. A quantitative nannofossil range chart. *Micropaleontology* 28(1): 85-92.

Introduction of the concept of average versus total stratigraphic ranges. The zonation and computer range chart using our probabilistic methods in the RASC computer program match the most detailed literature zonation. The data base used is that for late Cretaceous nannofossils in 10 wells drilled in offshore eastern Canada.

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Donaldson, J.R., Hacquebard, P.A. 1967. Coal mine geology and evaluation of coal reserves. *Geological Survey of Canada Paper* 67-1B: 52.

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Dörhöfer, G., Davies, E.H. 1979. Evolution of dinoflagellate cyst archeopyles; evidence from the Jurassic and Lower Cretaceous [abstract]. In: American Association of Stratigraphic Palynologists, Proceedings of the Annual Meeting (10th : 1977 : Tulsa, Okla). Palynology 3: 283.

293
Dörhöfer, G., Davies, E.H. 1980. Evolution of archeopyle and tabulation in Rhaetogonyaulacineae dinoflagellate cysts. Royal Ontario Museum Life Sciences Miscellaneous Publications. 91p.

Jurassic to early Cretaceous dinoflagellate cysts from Arctic Canada and Germany demonstrate evolutionary lineages. The earliest suessioid cysts formed disintegration archeopyles from which later genera stabilized into definite positions. The Rhaetogonyaulacineae may be traced from the Triassic to early late Cretaceous.

294
Downie, C., Hussain, M.A., Williams, G.L. 1971. Dinoflagellate cyst and acritarch associations in the Paleogene of southeast England. Geoscience and Man 3: 29-35.

A study of quantitative variations in some lower Tertiary dinoflagellate and acritarch assemblages demonstrated the existence of four distinct associations, each of which is characterized by the presence of species belonging to one to four genera. In each sample any one of these four associations is dominant. The distribution of the associations can usually be related to lithology. From this it is inferred that the controlling factors are ecologic.

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Downie, C., Williams, G.L., Sarjeant, W.A.S. 1961. Classification of fossil microplankton. Nature 192(4801): 471.

A proposal to classify fossil dinoflagellates as plants, rather than animals.

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Drapeau, G. 1973. Factor analysis: how it copes with complex geological problems. Journal of the International Association for Mathematical Geology 5(4): 351-363.

A set of 81 samples describing the texture of sediments of Scotian Shelf is used to calculate seven factor analyses comprising from three to nine factors. Factor loadings are used to determine that the four-factor solution is the most realistic. The goodness of fit of that four factor solution is analyzed.

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Drapeau, G. 1973. Natural cleaning of oil polluted seashores. In: Proceedings of the Coastal Engineering Conference (13th : 1972 :

Vancouver, B.C.). New York: American Society of Civil Engineers. V.3: 2557-2575.

Field observations were carried out for a period of 20 months on the seashores of Chedabucto Bay, following the spillage of 108,000 barrels of Bunker C oil in the bay from the tanker ARROW in February 1970.

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Drapeau, G. 1973. Sedimentology of herring spawning grounds on Georges Bank. International Commission for the Northwest Atlantic Fisheries Research Bulletin Number 10: 151-162.

Herring on Georges Bank spawn preferentially on gravel substratum in a high energy environment.

299
Drapeau, G., King, L.H. 1972. Surficial geology of the Yarmouth - Browns Bank map area. Geological Survey of Canada Paper 72-24. 6p. + 1 map. (Marine Science Paper 2) (BIO Contribution No. 304)

Description of the surficial sediments of the Scotian Shelf between Halifax and Yarmouth.

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Drugg, W.S., Sullivan, F.R., Williams, G.L. 1977. Nannofossils and dinoflagellates in Joides core holes 1-6 [abstract]. In: American Association of Stratigraphic Palynologists, Proceedings of the Annual Meeting (8th : 1975 : Houston, Tx). Palynology 1: 172-173.

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Duckworth, G.L., Baggeroer, A.B., Jackson, H.R. 1982. Crustal structure measurements near FRAM II in the Pole Abyssal Plain. Tectonophysics 89(1/3): 173-215.

302
Duedall, I.W., Buckley, D.E. 1971. Calcium carbonate monohydrate in sea water. Nature, Physical Science 234(45): 39-40. (BIO Contribution No. 263)

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Dunbrack, S.S., Amos, C.L. 1977. Hydrographic involvement in earth sciences study in Minas Basin. In: Proceedings of the Annual Canadian Hydrographic Conference (16th : 1977 : Burlington, Ont.). Lighthouse Special Edition: 44-48.

304
Dunsiger, A.D., Chari, T.R., Fader, G.B., Peters, G.R., Simpkin, P.G., Zielinski, A. 1981. Ocean sediments - A study relating geophysical, geotechnical, and acoustic properties. Canadian Geotechnical Journal 18(4): 492-501.

305
D'Apollonia, S., Lewis, C.F.M. 1982. Iceberg scour data maps for the Grand Banks of Newfoundland between 46°N. and 48°N. *Geological Survey of Canada Open File* 819. 9p. + maps.

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Edgar, D.C., Piper, D.J.W. 1979. A new bathymetric map of the middle Laurentian Fan. *Maritime Sediments* 15(1): 1-3.

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Elvers, D., Srivastava, S.P., Potter, K., Morley, J., Seidel, D. 1973. Asymmetric spreading across the Juan de Fuca and Gorda rises as obtained from a detailed magnetic survey. *Earth and Planetary Science Letters* 20(2): 211-219. (BIO Contribution No. 379)

The variation in the offsets of the magnetic anomalies across fracture zones off Washington-Oregon coasts has been interpreted in terms of the differential sea floor spreading mechanism. The interpretation reveals that Blanco fracture zone began about 15 m.y. before present.

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Emerson, S., Cranston, R.E., Liss, P.S. 1979. Redox species in a reducing fjord: equilibrium and kinetic considerations. *Deep-Sea Research* 26(8a): 859-878.

Data for ten redox sensitive chemical species from a reducing fjord indicated that some reduced species can exist metastabily in oxidized waters due to kinetic effects.

309
Evitt, W.R., Lentin, J.K., Millioud, M.E., Stover, L.E., Williams, G.L. 1977. Dinoflagellate cyst terminology. *Geological Survey of Canada Paper* 76-24. 11p.

Presentation of a new terminology for describing fossil dinoflagellate cysts.

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Ewing, G.N., Dainty, A.M., Blanchard, J.E., Keen, M.J. 1966. Seismic studies on the Eastern Seaboard of Canada: the Appalachian system. I. *Canadian Journal of Earth Sciences* 3: 89-109. (Bedford Institute of contribution no. 44).

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Exton, J., Gradstein, F.M. 1984. Early Jurassic stratigraphy and micropaleontology of the Grand Banks and Portugal. In: *Jurassic-Cretaceous Biochronology and Paleogeography of North America*, ed., G.E.G. Westerman. *Geological Association of Canada Special Paper* 27: 13-30.

An expansion of the 1976 Grand Banks zonation to Portugal and correlation with ammonite zones. A comparison of lithofacies on each side of the present ocean shows synchroneity with the Grand Banks being more shaley but less bituminous in the Bajocian.

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Fader, G. 1983. Seabed II. BIO Review '83: 41.

313
Fader, G.B. 1983. Sparker seismic reflection profiles; Bay of Fundy from Grand Manan Island to Chignecto Bay. Geological Survey of Canada Open File 898. 1v. + chart, profiles.

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Fader, G.B. 1984. The Wisconsinan glaciation of the southeast Canadian continental shelf [abstract]. In: Atlantic Geoscience Society Colloquium on Current Research in the Atlantic Provinces (1984 : [Amherst, N.S.]), Abstracts. [s.l.]: The Colloquium. P.10-11. Also published in Maritime Sediments and Atlantic Geology 20(2): 92-93.

Major ice sheet extended across the continental shelf 65,000 y B.P. Ice sheet began to receed by 46,000 B.P. and ice shelf was developed over basin areas. Most sediments on the shelf are part of one regressive glacial sequence.

315
Fader, G.B., Geonautics Limited 1984. A geophysical survey of Georges Bank, Georges Basin and Northeast Channel area of the Gulf of Maine. Geological Survey of Canada Open File 978. 3v.

Presents the results of the geological and geophysical survey by Geonautics Ltd., St. John's, Newfoundland under contract to the Atlantic Geoscience Centre, Geological Survey of Canada.

316
Fader, G.B., King, L.H. 1981. A reconnaissance study of the surficial geology of the Grand Banks of Newfoundland. Geological Survey of Canada Paper 81-1A: 45-56.

The results of a reconnaissance geological and geophysical study of the surficial sediments and near-surface bedrock geology of the Grand Banks of Newfoundland are presented.

317
Fader, G.B., King, L.H. 1981. A reconnaissance study of the surficial geology of the Hibernia discovery area - Grand Banks of Newfoundland [abstract]. Geological Society of America, Abstracts with Programs 13(3): 131.

The results of a reconnaissance study of the surficial and near-surface bedrock marine geology of the Hibernia discovery area, Grand Banks of Newfoundland are presented. On the basis of high-resolution seismic reflection profiles, sidescan sonograms and bottom samples, the position of a late Wisconsin low sea-level stand is tentatively identified at 110-120m. Over these depths glacial sediments were eroded and redistributed during the Holocene transgression.

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Fader, G.B., King, L.H., Josenhans, H.W. 1979. Surficial geology, Laurentian Channel and western Grand Banks of Newfoundland (scale 1:350,000). Geological Survey of Canada Open File 614: Maps.

This open file consists of a surficial geological map (scale 1: 350,000) showing the distribution of surficial lithostratigraphic formations across the seabed. A legend includes brief descriptions of these units.

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Fader, G.B., King, L.H., Josenhans, H.W. 1980. Surficial geology south of Newfoundland with emphasis on the glacial and post-glacial history [abstract]. Geological Association of Canada, Program with Abstracts 5: 52.

320
Fader, G.B., King, L.H., MacLean, B. 1977. Surficial geology of the eastern Gulf of Maine and Bay of Fundy. Geological Survey of Canada Paper 76-17. 23p. (Marine Sciences Paper 19) (BIO Contribution No. 661)

The surficial geology of the eastern Gulf of Maine and Bay of Fundy was based on the interpretation of echogram profiles, high resolution seismic reflection records, bottom dredge and grab samples, piston cores, bottom photographs and adjacent land geology. The report is accompanied by a map.

321
Falconer, R.K.H. 1976. Paleomagnetic results on early Tertiary lava flows from west Greenland and their bearing on the evolution history of the Baffin Bay - Labrador Sea region: discussion. Canadian Journal of Earth Sciences 13(10): 1491-1493.

Discussion of paper by Athavale and Sharma, pointing out errors in their application of west Greenland and Baffin Island paleomagnetic data to paleogeography of Greenland and North America. Their method does provide the unique solution they imply. Their solution conflicts with much other data but the problem lies in the reliability of the Baffin Island data.

322
Falconer, R.K.H. 1977. Marine geophysical and geological research in Baffin

Bay and the Labrador Sea, CSS HUDSON 1976. Geological Survey of Canada Paper 77-1B: 255-260.

The program of research and preliminary results from AGC cruises on CSS HUDSON in Baffin Bay and Labrador Sea in 1976 are described.

323
Falconer, R.K.H., Falconer, R.F. 1982. Seismicity, fracture zones, and poles of rotation of the Pacific-Antarctic and Indian-Antarctic plate boundaries. In: Antarctic Geoscience; Symposium on Antarctic Geology and Geophysics (1977 : Madison, Wi), ed., C. Craddock. Madison: University of Wisconsin Press. P.55-64. (International Union of Geological Sciences, Series B, 4)

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Farrow, G.E., Syvitski, J.P.M., Tunnicliffe, V. 1983. Suspended particulate loading on the macrobenthos in a highly turbid fjord - Knight Inlet, British Columbia. Canadian Journal of Fisheries and Aquatic Sciences 40(supplement 1): 273-288.

325
Fenwick, D.B., Keen, M.J., Keen, C., Lambert, A. 1968. Geophysical studies of the continental margin northeast of Newfoundland. Canadian Journal of Earth Sciences 5(3/pt.1): 483-500.

326
Fillon, R.H. 1975. Deglaciation of the Labrador continental shelf. Nature 253(5491): 429-431. (BIO Contribution No. 490)

Submarine land forms reveal the pattern of disintegration of Wisconsin continental ice, grounded on Hamilton Bank. Rising summer temperatures triggered deglaciation by initiating basal melting which decreased the ice sheets resistance to spreading. Final deglaciation of the shelf probably was as late as 9000 B.P.

327
Fillon, R.H. 1976. Hamilton Bank, Labrador Shelf: Postglacial sediment dynamics and paleo-oceanography. Marine Geology 20(1): 7-25. (BIO Contribution No. 495)

Storm waves and the Labrador current have eroded glacial drift resulting in lag pavements and winnowed sediments on the bank. A shift in the Labrador current which affected coastal climates is suggested by observed faunal and sedimentological changes.

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Fillon, R.H. 1976. The Sangamonian/Wisconsinan transition in the Labrador Sea [abstract]. Geological Society of America, Abstracts with Programs 8(6): 864.

329
Fillon, R.H. 1977. Ice-rafted detritus and paleotemperature: Late Cenozoic relationships in the Ross Sea region. Marine Geology 25(1-3): 73-93.

Ice-rafted detritus (IRD) and paleotemperatures in the Ross Sea region are related in two models to paleocirculation. The models depict changing oceanographic gradients over the last 3.0 m.y. Labrador Sea icebergs appear to follow the model.

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Fillon, R.H. 1978. Glacier termini in eastern Hudson Strait [abstract]. Geological Society of America, Abstracts with Programs 10(7): 401.

331
Fillon, R.H. 1979. Ross Sea diatoms: modern assemblage distributions and their relationship to ecologic, oceanographic, and sedimentary conditions - a discussion. Marine Micropaleontology 4(4): 399-400.

332
Fillon, R.H. 1979. Late Quaternary extent of the west Antarctic ice sheet: new evidence from Ross Sea cores - Comment. Geology 7(11): 518-519.

333
Fillon, R.H. 1980. A marine viewpoint of late Wisconsinan ice sheet growth and disintegration in eastern North America [abstract]. In: American Quaternary Association Biennial Meeting (6th : 1980 : Orono, Me), Abstracts and Program. American Quaternary Association, National Conference, Abstracts 6: 76-77.

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Fillon, R.H. 1980. A three-phase (vapor-liquid-solid) model of ice growth and the initiation of northern hemisphere Wisconsinan glaciation [abstract]. In: American Quaternary Association Biennial Meeting (6th : 1980 : Orono, Me), Abstracts and Program. American Quaternary Association, National Conference, Abstracts 6: 78.

335
Fillon, R.H., Duplessy, J.C. 1980. Labrador Sea bio-, tephro-, oxygen isotopic stratigraphy and late Quaternary paleoceanographic trends. Canadian Journal of Earth Sciences 17(7): 831-854. (BIO Contribution No. 915)

336
Fillon, R.H., Ferguson, C., Thomas, F. 1978. Cenozoic provenance and sediment cycling: Hamilton Bank, Labrador Shelf. Journal of Sedimentary Petrology 48(1): 253-268. (BIO Contribution No. 648)

337
Fillon, R.H., Folinsbee, R.A., Palmer, R. 1978. Deep shelf and slope terraces off northern Labrador. Nature 273(5665): 743-746. (BIO Contribution

No. 704)

Continuous submerged sea level terraces have been traced for over 150 km along the Saglek Bank continental margin. Their parallelism and linearity suggest that they are not slump or fault related phenomena. The regular vertical spacing of the terraces and greater longitudinal till of the deepest ones suggest that the terraces were formed on a tectonically subsiding continental margin during successive low-sea-level events.

338
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Acoustic/morphologic variation on the northern Labrador Shelf, calibrated to core samples and dated using 14C on shells has been used to determine that ice was grounded to the shelf edge in the late Wisconsinan. Deglaciation occurred first in the marginal channel and in transverse troughs ca. 10,000-000 B.P.

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Detailed spore and pollen biostratigraphy and preliminary description of dinoflagellate taxa in the upper Triassic of five Sverdrup Basin wells.

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The activities during 1978 at AGC that pertain to the collection and interpretation of gravity data are described.

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Forbes, D.L. 1984. Coastal geomorphology and sediments of Newfoundland. *Geological Survey of Canada Paper* 84-1B: 11-24.

Major coastal features in Newfoundland include outcrop, cliffs and platforms; fjords, estuaries, lagoons and tidal systems; barriers, beaches, dunes; boulder clusters and boulder barricades. Major controls include oceanographic regime, geological context, paraglacial sediment supply, changing relative sea level, substrate control, and compartmentalization. Storm surges, storm waves and tsunamis constitute significant hazards to development in the coastal zone.

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Forbes, D., Heffler, D.E., Boyd, R. 1984. RALPH observations of shoreface sedimentation processes at Martinique Beach [abstract]. In: *Atlantic Geoscience Society Colloquium on Current Research in the Atlantic Provinces (1984 : [Amherst, N.S.]), Abstracts*. [s.l.]: The Colloquium. P.13. Also published in *Maritime Sediments and Atlantic Geology* 20(2): 100.

In order to characterise the summer beach accretion process, RALPH was deployed in 11m depth on the shoreface seaward of Martinique Beach. The resulting data indicated four distinctive ripple configurations with wavelengths in the 6-21cm range. Ripple migration (primarily shoreward) was restricted to moderate-energy summer storm events. Outer shoreface sediment transport contributed to beach accretion.

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Forbes, D.L., Lewis, C.P. 1983. Transgressive coastal sedimentation, Yukon Beaufort Sea. *Geological Association of Canada/Mineralogical Association of Canada/Canadian Geophysical Union, Program with Abstracts* 8: A23.

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du delta du Mackenzie et peninsule de Tuktoyaktuk. In: Marine Science Atlas of the Beaufort Sea; Sediments = Atlas des Sciences Marines de la Mer de Beaufort; Sediments, ed./rédacteur, B.R.Pelletier. Geological Survey of Canada Miscellaneous Report = Commission Géologique du Canada Rapport Divers 38: Plate 6.

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Fordjor, C.K., Bell, J.S., Gough, D.I. 1983. Breakouts in Alberta and stress in the North American plate. Canadian Journal of Earth Sciences 20(9): 1445-1455.

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The waveform of seismograms obtained at 45°N on the Mid-Atlantic Ridge are compared to synthetic seismograms for various models of the crust and upper mantle structure. The best fitting model is one with a high velocity lower crustal layer (3b) and a velocity gradient in the upper 2 km of the mantle. There is no evidence for a low velocity zone near the crust-mantle boundary.

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Fricker, A. 1984. The other side of computing [abstract]. In: Atlantic Geoscience Society Colloquium on Current Research in the Atlantic Provinces (1984: [Amherst, N.S.]), Abstracts. [s.l.]: The Colloquium. P.12. Also published in Maritime Sediments and Atlantic Geology 20(2): 98.

The biostratigraphic databases at AGC represent a new major scientific use of computers. The operational capability and design is analysed with reference to future development.

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Gardner, J.V., Dean, W.E., Jansa, L.F. 1978. Sediments recovered from the northwest African continental margin, Leg 41, Deep Sea Drilling Project. In: Initial Reports of the Deep Sea Drilling Project, Y. Lancelot, E. Seibold, et al. Washington: U.S. Government Printing Office. V.41: 1121-1134. (BIO Contribution No. 818)

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A report of a survey completed for the New Brunswick Electric Power Commission of submarine routes for a power cable to connect Grand Manan Island and the New Brunswick mainland. Maps included are surficial geology, surficial sediment thickness, bathymetry, survey track plots and depth profiles of the area.

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Gradstein, F.M., van Gelder, A. 1971. Prograding clastic fans and transition from a fluviatile to a marine environment in Neogene deposits of eastern Crete. Geologie en Mijnbouw 50(3): 383-392.

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Triassic. A major unconformity occurs on the Grand Banks beneath the Late Albian-Coniacian transgression. Rates of subsidence and sedimentation are calculated.

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Grant, A.C. 1967. A continuous seismic profile from Halifax Harbour, Nova Scotia. Maritime Sediments 3(2/3): 64. (BIO Contribution No. 101)

424
Grant, A.C. 1968. Seismic-profiler investigation of the continental margin northeast of Newfoundland. Canadian Journal of Earth Sciences 5(5): 1187-1198. (BIO Contribution No. 125)

The outstanding feature of the margin revealed by seismic-profiler data is the extensive slumping of sediments that has occurred on the slope and rise northeast of Newfoundland. Good records of buried 'wavy' reflectors were obtained near the foot of the slope. Similar reflectors have been reported at other localities in southern Labrador Sea; their origin has not been definitely established.

425
Grant, A.C. 1968. Some aspects of the bedrock geology of Hudson Bay as interpreted from continuous seismic reflection profiles [abstract]. In: Earth Science Symposium on Hudson Bay (1968 : Ottawa). Ottawa: Department of Energy, Mines and Resources. Unpaged.

426
Grant, A.C. 1970. Recent crustal movements on the Labrador Shelf. Canadian

Journal of Earth Sciences 7(2/pt.2): 571-575. (BIO Contribution No. 174)

Selected seismic profiles illustrate variation in the style of the contact between Precambrian crystalline rocks and Cretaceous-Tertiary sediments at the marginal channel along the inner Labrador Shelf. Upwarping of the sedimentary strata along the seaward side of the marginal channel appears to be related to relatively recent crustal movement. This may indicate that upwarping is related to isostatic adjustment for removal of material by glacial erosion.

427
Grant, A.C. 1971. Comments on surficial aspects of the Labrador Shelf region. In: Proceedings of the Canadian Seminar on Icebergs (1971 : Halifax, N.S.). [s.l.]: Canada Department of National Defence. P.3-15.

428
Grant, A.C. 1971. Continental margin east of Newfoundland. Bedford Institute Biennial Review 1969/70: 81.

Report on the progress of a reconnaissance seismic profiler study of the Canadian continental margin from the Grand Banks to Hudson Strait. The principal results from the latest cruise include a seismic and magnetic traverse across Orphan Knoll, which indicates that this feature is probably continental in origin.

429
Grant, A.C. 1971. Distributional trends in the recent marine sediments of northern Baffin Bay. Maritime Sediments 7(2): 41-63.

430
Grant, A.C. 1971. Flemish Cap. Bedford Institute Biennial Review 1969/70: 80.

Report on a seismic profile survey of the Flemish Cap area, with a summary of the principal geological features of Flemish Cap, Flemish Pass, and the eastern Grand Banks.

431
Grant, a.C. 1971. The continental margin off Labrador and eastern Newfoundland - Morphology and geology. Doctoral Thesis, Dalhousie University. 131p.

432
Grant, A.C. 1972. Geophysical investigations on the continental shelf off southern Baffin Island [abstract]. Eos; Transactions, American Geophysical Union 53(4): 407.

433
Grant, A.C. 1972. Labrador continental margin. Canadian Hydrographic Service

Bathymetric Chart 813: 1 map.

A compilation of all available bathymetric data, using echo sounder profiles and seismic profiler records as prime control for determining most likely bathymetric configuration.

434
Grant, A.C. 1972. The continental margin off Labrador and eastern Newfoundland - morphology and geology. Canadian Journal of Earth Sciences 9(11): 1394-1430. (BIO Contribution No. 316)

435
Grant, A.C. 1973. Geological and geophysical results bearing upon the structural history of the Flemish Cap region. In: Earth Science Symposium on Offshore Eastern Canada (1971 : Ottawa), ed., P.J. Hood. Geological Survey of Canada Paper 71-23: 373-387. (BIO Contribution No. 452)

This study of the eastern Grand Banks, Flemish Pass and Flemish Cap utilized seismic profiler records, magnetic and gravity data, dredge and drill samples, continental structure, with a central zone of exposed basement flanked by outward-dipping sedimentary strata. Clearly the Bullard et al. (1965) predrift reconstruction of the North Atlantic should be revised to include Flemish Cap.

436
Grant, A.C. 1973. Reconnaissance geophysical surveys in western Labrador Sea. Bedford Institute of Oceanography Biennial Review 1971/72: 311-313.

Report on the progress of a reconnaissance geophysical study of the western margin of the Labrador Sea. A brief review of the regional geology, with emphasis on the key areas that have been defined as warranting detailed study, such as Davis Strait, Orphan Knoll, and Flemish Cap, the shelf northeast of Newfoundland, and the shelf off southern Baffin Island.

437
Grant, A.C. 1974. Structural modes of the western margin of the Labrador Sea [abstract]. In: GAC/MAC '74; Annual Meetings, Geological Association of Canada [and] Mineralogical Association of Canada (1974 : St. John's, Nfld.), Program Abstracts, 3rd Circular. [St. John's: The Conference]. P.38-39.

438
Grant, A.C. 1975. Geophysical results from the continental margin off southern Baffin Island. In: Canada's Continental Margins and Offshore Petroleum Exploration, ed., C.J. Yorath, E.R. Parker and D.J. Glass. Calgary: Canadian Society of Petroleum Geologists in association with the Geological Association of Canada. P.411-431. (Canadian Society of Petroleum Geologists Memoir 4) (BIO Contribution No. 528)

439
Grant, A.C. 1975. Labrador Shelf [abstract]. In: Canada's Continental Margins and Offshore Petroleum Exploration, ed., C.J. Yorath, E.R. Parker and D.J. Glass. Calgary: Canadian Society of Petroleum Geologists in association with the Geological Association of Canada. P. 891. (Canadian Society of Petroleum Geologists Memoir 4).

440
Grant, A.C. 1975. Seismic reconnaissance of Lake Melville, Labrador. Canadian Journal of Earth Sciences 12(12): 2103-2110. (BIO Contribution No. 526)

Seismic profiler transects indicate that much of Lake Melville is underlain by sedimentary strata, which are probably an extension of the Double Mer Formation (Proterozoic? Paleozoic?) exposed onshore to the northwest. A striking feature of Lake Melville is the great thickness of unconsolidated sediments (400m), and the overdeepening of the bedrock surface beneath by more than 500m relative to its outlet eastward to the Labrador Sea.

441
Grant, A.C. 1975. Structural modes of the western margin of the Labrador Sea. In: Offshore Geology of Eastern Canada: Volume 2 - Regional Geology, ed., W.J.M. Van der Linden and J.A. Wade. Geological Survey of Canada Paper 74-30(2): 217-231. (BIO Contribution No. 553)

Multichannel reflection seismic data show profoundly different styles of subsidence of the Labrador continental margin north and south of the zone of the Grenville front. This paper suggests that continental crust probably stands farther seaward off Labrador than previously suspected.

442
Grant, A.C. 1977. Multichannel seismic reflection profiles of the continental crust beneath the Newfoundland Ridge. Nature 270(5632): 22-25. (BIO Contribution No. 694)

Multichannel reflection seismic profiles from the Newfoundland Ridge show sequences of smooth, gently dipping reflectors within traditional 'basement'. This indicates that the Newfoundland Ridge is a more complex structure than simply being a fracture zone in oceanic crust. It appears more likely that this feature represents an area of subsided continental crust.

443
Grant, A.C. 1978. What is basement?. Geotimes 23(3): 11-12.

444
Grant, A.C. 1979. DSDP results - An overview [abstract]. Maritime Sediments 15(1): 22.

DSDP results do not support plate tectonic models of oceanic crust.

445
Grant, A.C. 1979. Geophysical observations bearing upon the origin of the Newfoundland Ridge. In: Crustal Properties across Passive Margins, ed., C.E. Keen. Tectonophysics 59(1-4): 71-81. (Inter-Union Commission on Geodynamics Scientific Report 51) (BIO Contribution No. 887) also published in: Crustal Properties across Passive Margins: Selected Papers from the Symposium (1978 : Halifax, N.S.), ed., C.E. Keen. Amsterdam: Elsevier, p.139-150. (Developments in Geotectonics 15)

This paper reiterates the evidence for the possible continental origin of the Newfoundland Ridge, and presents further supportive evidence based on modelling of gravity data.

446
Grant, A.C. 1979. Late Tertiary crustal movements affecting the Labrador Shelf [abstract]. Eos; Transactions, American Geophysical Union 60(42): 746.

Multichannel reflection seismic profiles show a buried, late (?) Miocene erosional surface on the Labrador Shelf.

447
Grant, A.C. 1979. The continent-ocean crustal boundary in the western Labrador Sea [abstract]. Eos; Transactions, American Geophysical Union 60(18): 375.

A strong, smooth, seismic reflector buried deeply beneath the Labrador slope and rise is interpreted as representing the early Cretaceous unconformity surface prominent beneath the shelf to the south.

448
Grant, A.C. 1980. Problems with plate tectonic models for Baffin Bay [abstract]. Geological Association of Canada Annual Meeting, Abstracts 5: 57.

The field evidence for geologic continuity from Ellesmere Island to Greenland can be accomodated by processes of vertical crustal movements, but not by models based on lateral displacement.

449
Grant, A.C. 1980. Problems with plate tectonics: The Labrador Sea. Bulletin of Canadian Petroleum Geology 28(2): 252-278. (BIO Contribution No. 1016)

450
Grant, A.C. 1981. Geology of the Labrador Sea: Some constraints on Arctic geology [abstract]. In: International Symposium on Arctic Geology

(3rd : 1981 : Calgary). Calgary: The Convention. P.53.

451
Grant, A.C. 1982. History of the sedimentary basins offshore eastern Canada. In: Proceedings, Earth Science Teachers Conference (1982 : Halifax). Halifax: The Conference. P.31-51.

452
Grant, A.C. 1982. Problems with plate tectonic models for Baffin Bay - Nares Strait: evidence from the Labrador Sea. In: Nares Strait and the Drift of Greenland; A Conflict in Plate Tectonics, ed., P.R. Dawes and J.W. Kerr. Meddelelser om Gronland; Geoscience 8: 313-326.

453
Grant, A.C. 1983. Oil industry multichannel seismic data. BIO Review '83: 18.

454
Grant, A.C. 1984. A seismic base-event map for the continental margin around Newfoundland [abstract]. In: Joint Programme with Abstracts; Annual Congress, Canadian Meteorological and Oceanographic Society (18th : 1984 : Halifax, N.S.) [and] Annual Meeting, Canadian Geophysical Union (11th : 1984 : Halifax, N.S.) = Programme Conjoint avec Résumés; Congrès Annuel, Société Canadienne de Météorologie et d'Océanographie (18e : 1984 : Halifax, N.-E.) [et] Réunion Annuelle, l'Union Canadienne de Géophysique (11e : 1984 : Halifax, N.-E.), ed., E.J. Truhlar. Halifax: The Conference. P.97-98.

A seismic "base-event" map for the continental margin around Newfoundland, constructed from multichannel reflection seismic data, provides a subsurface datum from which to assess regional geology at both deeper and shallower levels.

455
Grant, A.C. 1984. Everted structures in the Solander Basin, New Zealand [abstract]. Eos; Transactions, American Geophysical Union 65(16): 283.

A half-graben in the Solander Basin that subsided about 3 km in late Cretaceous-Eocene time underwent about 2 km of eversion in Plio-Pleistocene time. This style of crustal behaviour is probably more widespread than many current models of crustal processes might suggest.

456
Grant, A.C. 1984. The Shelfbreak: Critical Interface on Continental Margins, ed., D.J. Stanley and G.T. Moore [book review]. Bulletin of Canadian Petroleum Geology 32(1): 97-99.

457
Grant, A.C., Hinz, K., Schluter, H.U., Srivastava, S.P., Umpleby, D., Woodside, J. 1982. Multichannel reflection seismic survey in the Labrador Sea. Geological Survey of Canada Open File 825. 4p.

458
Grant, A.C., Macnab, R.F. 1974. Bedrock geology, northeast Newfoundland. Geological Survey of Canada Paper 74-1B: 153-155.

This report shows the location of seismic reflection profiles off Newfoundland recorded by the MV Minna in 1973. Good navigation control enabled precise crossing of seismic lines to determine the strike of bedrock layering. These tests confirmed that fold axes in the Carboniferous rocks northeast of Newfoundland trend north to west of north. Domal structures in the area are interpreted as salt diapirs.

459
Grant, A.C., Manchester, K.S. 1969. Geophysical investigations in the Ungava Bay - Hudson Strait region [abstract]. Eos; Transactions, American Geophysical Union 50(4): 207.

460
Grant, A.C., Manchester, K.S. 1970. Geophysical investigations in the Ungava Bay - Hudson Strait region of northern Canada. Canadian Journal of Earth Sciences 7(4): 1062-1076. (BIO Contribution No. 192)

A synthesis of gravity, magnetic, seismic and bathymetric data from Ungava Bay-Hudson Strait and Frobisher Bay. The limits of the Paleozoic outlier in Ungava Bay and Hudson Strait are defined and a second one is delineated in Frobisher Bay. There also appears to be a major fault along the trend of Hudson Strait.

461
Grant, A.C., Manchester, K.S. 1970. Seismic reflection profile from the continental margin off Nova Scotia, Canada. AOL Data Series 1970-6-D. 5p.

This seismic profile provides continuous seismic reflection coverage from the vicinity of Mobil Sable Island C-67 southward to deep water beyond the foot of the continental slope.

462
Grant, A.C., Manchester, K.S. 1971. Seismic reflection profile from the continental margin off southern Labrador, Canada. AOL Data Series 1971-9-D. 3p.

The report contains a reduced copy of the seismic record section, a plot of shot points, and a listing of shooting, recording, and data processing parameters. The seismic line provides a continuous seismic cross-section for the continental shelf, slope and rise off Labrador.

463
Grant, D.R., Lewis, C.F.M., Mathews, W.H., McDonald, B.C., Scott, J.S. 1972. Coastal geomorphology and man. In: Coastal zone: Proceedings of a Seminar held at Bedford Institute of Oceanography, March 1972, comp., Atlantic Unit, Water Management Service, Dept. of the Environment. Ottawa, Ont.: Department of the Environment. V.1: 179-187.

464
Graves, M. 1983. A survey of the published literature on sampling and in-situ measurements on physical properties in the vicinity of the ocean's bottom. Geological Survey of Canada Open File 919. 350p. In various pagings. (Compiled in 1981).

465
Greenberg, D.A., Amos, C.L. 1983. Suspended sediment transport and deposition modelling in the Bay of Fundy, N.S. - a region of potential tidal power development. Canadian Journal of Fisheries and Aquatic Sciences 40 (Supplement 1): 20-34.

466
Guilbault, J.P. 1982. The pre-Late Wisconsinan foraminiferal assemblage of St. Lawrence Bay, Cape Breton Island, Nova Scotia. Geological Survey of Canada Paper 82-1C: 39-43.

467
Guilbault, J.P. 1984. Late-glacial foraminifera localities in raised marine sediments in western Newfoundland. Geological Survey of Canada Open File 1003. 97p.

468
Hacquebard, P.A. 1943. Kolenpetrographische studien. Doctoral Thesis, Rijksuniversiteit te Groningen. 129p. (Mededelingen Geologische Stichting, Serie C-III-2(1)) Dutch with English summary.

Describes the microscopic constituents of coal and their mode of formation, and develops a new method of correlating coal seams by petrographic profiles in the South Limburg coalfield of the Netherlands. Coal facies interpretations on four seams are also presented.

469
Hacquebard, P.A. 1951. The correlation, by petrographic analyses, of No. 5 Seam in the St. Rose and Chimney Corner coalfields, Inverness County, Cape Breton Island, Nova Scotia. Geological Survey of Canada Bulletin 19. 33p.

Explains the methods followed in sampling of coal seams, in preparing polished sections of coal, and in compilation of coal-seam data. The conditions of deposition and rank and heating value are also determined and used to correlate coal seams in two separate basins. The coal contains a high abundance of opaque resin rodlets ('sclerotioids').

470
Hacquebard, P.A. 1952. A petrographic investigation of the Tracy seam of the Sydney coalfield, Nova Scotia. In: Proceedings of the Conference on the Origin and Constitution of Coal (1st : 1950 : Crystal Cliffs, Nova Scotia): 293-313.

With petrographic profiles, the regional extent and variations of the Tracy seam have been determined. The seam is characterized by a unique concentration of "squat bulky spores", noted in polished section spore density diagrams (as counted per square inch) which proved valuable for seam identification.

471
Hacquebard, P.A. 1952. Opaque matter in coal. Economic Geology 47(4): 494-516.

Opaque matter, as presented by the organic coal constituents, is discussed and illustrated with 36 photomicrographs: primary and secondary opacity can be recognized and an appropriate nomenclature for the (primary) opaque constituents is introduced.

472
Hacquebard, P.A. 1952. The nomenclature and classification of coal petrography. In: Proceedings of the Conference on the Origin and Constitution of Coal (1st : 1950 : Crystal Cliffs, Nova Scotia): 8-38.

The macerals and microlithotypes of coal as observed under reflected light are described and illustrated, and it is shown there is a correlation between the nomenclature and classification of coal petrology, as developed from reflected light, and transmitted light techniques.

473
Hacquebard, P.A. 1955. Microscopic coal research in Canada. Leidse Geologische Mededelingen 20: 74-88.

A discussion of terminology, quantitative coal petrology analysis, seam correlation, coal preparation and studies of spontaneous combustion of coals from eastern Canada.

474
Hacquebard, P.A. 1957. Plant spores in coal from the Horton Group (Mississippian) of Nova Scotia. Micropaleontology 3(4): 301-324.

A taxonomic spore study of a coal of earliest Mississippian age. 19 genera and 50 species (including 4 new genera and 30 new species) are described. The assemblage shows close affinity with Late Devonian spores of the USSR.

475
Hacquebard, P.A. 1960. The value of a quantitative separation of the maceral vitrinite into its constituents telinite and collinite for the petrography of coking coals. In: Proceedings of the International Committee for Coal Petrology, International Congress on Coal Petrology (1st : 1958 : Heerlen, The Netherlands), nr. 3: 131-139.

Quantitative analyses of the constituents collinite and telinite have been made on etched grain mounts examined with an oil immersion objective. Studies on Carboniferous coals from Nova Scotia and Cretaceous coals from Alberta show that there exists a close relationship between the amount of telinite and the swelling indices of these coals. This correlation is significant for the evaluation of coking coals.

476
Hacquebard, P.A. 1961. Palynological studies on some upper and lower Carboniferous strata in Nova Scotia: Part 1: the Mabou coal area. In: Proceedings of Conference on the Origin and Constitution of Coal (3rd : 1956 : Crystal Cliffs, Nova Scotia): 227-253.

477
Hacquebard, P.A. 1966. Palaeoecological and environmental studies of the Minto coalfield, N.B. Geological Survey of Canada Paper 66-2: 60.

478
Hacquebard, P.A. 1967. Minto coalfield. Geological Survey of Canada Paper 67-1A: 169.

479
Hacquebard, P.A. 1970. Coal. In: Geology and Economic Minerals of Canada (5th ed.), ed., R.J.W. Douglas. Geological Survey of Canada Economic Geology Report 1: 356-364.

A synopsis of the geology of the different coal basins in the Maritimes, together with examples of facies interpretations from coal petrology, palynology and the lithology of the associated sediments. Data on coal production and coal resources are also included.

480
Hacquebard, P.A. 1972. Report on carbonaceous material from Orphan Knoll, Site 111, Deep Sea Drilling Project. In: Initial Reports of the Deep Sea Drilling Project, A.S. Laughton, W.A. Berggren et al. Washington: U.S. Government Printing Office. V.12: 51.

A brief report on rank determination of detrital particles of coal in Jurassic sediments. Of significance to continental drift interpretations and to oil and gas possibilities in relation to degree of organic metamorphism.

481
Hacquebard, P.A. 1972. The Carboniferous of eastern Canada. In: Compte Rendu; Congrès International de Stratigraphie et de Géologie du Carbonifère (7e : 1971 : Krefeld, Germany). Krefeld: Geolog Landesamt Nordrhein-Westfalen. V.1: 69-90. (Reprinted in: Geology of Coal, ed., C.A. Ross and J.R.P. Ross. Stroudsburg, Pa: Hutchinson Ross Publishing Co., 1984, p.45-66.) (Benchmark papers in Geology 77.)

The paper provides a comprehensive overview of the tectonic framework, lithology, and biostratigraphy of the Carboniferous in the Atlantic region. It discusses the presence of 17 miospore zones, and illustrates the regional and vertical distribution of these zones in four 3-dimensional diagrams, containing a large number of columnar stratigraphic sections. Age, location, production, and resources of mineable coals and their different development in separate basins are mentioned.

482
Hacquebard, P.A. 1974. A composite coalification curve of the Maritime region and its value for petroleum exploration. Geological Survey of Canada Paper 74-1B: 21-23.

483
Hacquebard, P.A. 1975. Correlation between coal rank, paleotemperature and petroleum occurrences in Alberta. Geological Survey of Canada Paper 75-1B: 5-8.

484
Hacquebard, P.A. 1975. Pre- and post-deformational coalification and its significance for oil and gas exploration. In: Petrographie de la Matière Organique des Sediments, Relations avec la Paleotemperature et le Potentiel Pétrolier, ed., B. Alpern. Paris: Centre National Recherche Scientifique. P.225-241.

There are fundamental differences in coalification patterns between the coals of the Rocky Mountain and Maritime regions. These are significant to the evaluation of coking coals and appraisal of hydrocarbons. For the Maritime region a combined Carboniferous and Mesozoic (from offshore wells) coalification curve is useful in delineating the most favourable intervals of oil or gas potential. The effect of time on the coalification process is also discussed.

485
Hacquebard, P.A. 1976. Geological appraisal of submarine coal resources in Sydney field of Nova Scotia, Canada [abstract]. Geological Society of

America, Abstracts with Programs 8(6): 898.

486
Hacquebard, p.A. 1976. [Book review of Stach's Textbook of Coal Petrology, by E. Stach et al]. Geoscience Canada 3(4): 312.

A favourable review of Stach's text book on Coal Petrology.

487
Hacquebard, P.A. 1977. Rank of coal as an index of organic metamorphism for oil and gas in Alberta. In: The Origin and Migration of Petroleum in the Western Canadian Sedimentary Basin, Alberta: A Geochemical and Thermal Maturation Study, by G. Deroo et al. Geological Survey of Canada Bulletin 262: 11-22.

488
Hacquebard, P.A. 1979. A geological appraisal of the coal resources of Nova Scotia. Canadian Institute of Mining and Metallurgy. CIM Bulletin 72(802): 76-87.

Paper gives an update on remaining coal resources of Nova Scotia, in light of recent drilling results in onshore areas.

489
Hacquebard, P.A. 1979. Rank variations in Sydney coalfield, Nova Scotia; geological and economic considerations [abstract]. Geological Society of America, Abstracts with Programs 11(7): 437.

490
Hacquebard, P.A. 1980. Geologic development of the Sydney coal basin, Nova Scotia [abstract]. Geological Association of Canada Annual Meeting Abstracts 5: 58.

491
Hacquebard, P.A. 1980. Trip 7: Geology of Carboniferous coal deposits in Nova Scotia. [s.l.]: The Geological Association of Canada and the Mineralogical Association of Canada. 37p.

492
Hacquebard, P.A. 1981. Value of occurrence of detrital particles of coal in tracing the provenance of sedimentary rocks [abstract]. Maritime Sediments and Atlantic Geology 17(3): 149-150.

493
Hacquebard, P.A. 1983. Geological development and economic evaluation of the Sydney coal basin, Nova Scotia. Geological Survey of Canada Paper 83-1A: 71-81.

494
Hacquebard, P.A. 1984. Coal rank changes in the Sydney and Pictou coalfields

of Nova Scotia; Cause and economic significance. Canadian Institute of Mining and Metallurgy. CIM Bulletin 77(865): 33-40.

495
Hacquebard, P.A. 1984. Composition, rank and depth of burial of two Nova Scotia lignite deposits. Geological Survey of Canada Paper 84-1A: 11-15.

496
Hacquebard, P.A. 1984. Geologic development and economic evaluation of the Sydney coal basin, Nova Scotia, Canada. In: International Congress of Carboniferous Stratigraphy and Geology (9th : 1979 : Washington, D.C. and University of Illinois at Urbana-Champaign), Compte Rendu; Vol. 3, ed., E.S. Belt and R.W. MacQueen. Carbondale and Edwardsville: Southern Illinois University Press. P.61-71.

497
Hacquebard, P.A., Avery, M.P. 1976. On the petrography rank and predicted coke stabilities of Acadia seam coal, Pictou coal field, Nova Scotia. Geological Survey of Canada Technical Report 11-E/10-76-1. 25p.

498
Hacquebard, P.A., Avery, M.P. 1978. Appraisal of coal seam quality in boreholes using sidewall core samples [abstract]. Geological Society of America, Abstracts with Programs 10(7): 414.

499
Hacquebard, P.A., Avery, M.P. 1982. Geological and geothermal effects on coal rank variations in the Pennsylvanian basin of New Brunswick [abstract]. Maritime Sediments and Atlantic Geology 18(1): 56.

500
Hacquebard, P.A., Avery, M.P. 1982. Petrography of the Harbour seam in the Donkin reserve area of the Sydney coal field, Nova Scotia. In: Coal: Phoenix of the '80s: Proceedings CIC Coal Symposium (64th : 1982 : Ottawa), ed., A.M. Al Taweel. Ottawa: The Conference. V.1: 79-86.

This paper gives results of considerable amount of analytical work done on the petrographic composition of 11 borehole samples of the Harbour Seam. This seam will be the main producer of the new Donkin line, and the study gives information of economic significance on pyrite and sulphur distribution; (3) coal cleaning possibilities; (4) seam thickness variations; (5) rank changes; and (6) evaluation of coking properties.

501
Hacquebard, P.A., Avery, M.P. 1984. Geological and geothermal effects on coal rank variations in the Carboniferous basin of New Brunswick. Geological Survey of Canada Paper 84-1A: 17-28.

502
Hacquebard, P.A., Barss, M.S. 1957. A Carboniferous spore assemblage in coal from the South Nahanni River area, Northwest Territories. Geological Survey of Canada Bulletin 40. 63p.

An early Carboniferous spore assemblage from western Canada consisting of 22 genera (5 new) and species (29 new) is recognized and described for the first time. Comparison with assemblages reported from Spitsbergen and the Moscow basin suggest a distinct floral province in the early Carboniferous.

503
Hacquebard, P.A., Barss, M.S. 1960. [Pamphlet reproduced from a seven foot high display book which depicts the activities of the department of Mines and Technical Surveys]. Ottawa: Department of Mines and Technical Surveys. 9p.

Consists of one panel in seven foot high display book which depicts the activities of the Department of Mines and Technical Surveys. The panel includes diagrams, photomicrographs and brief descriptions of the following constituents, applications of coal petrology, and spore investigations.

504
Hacquebard, P.A., Barss, M.S. 1966. The value of fossil spores in evaluating the remaining reserves of the Pictou coalfield, N.S. Geological Survey of Canada Paper 66-2: 60-61.

Spores prove that Westville coals underlie Stellarton coals; thus there may be substantial reserves beneath the Stellarton district.

505
Hacquebard, P.A., Barss, M.S. 1968. Paleogeography and facies aspects of the Minto coal seam, New Brunswick, Canada. Geological Survey of Canada Paper 68-1B: 5-7.

Outlines stratigraphic setting of Minto basin, and regional development of coal seam; suggestions are made for additional reserves. The coal lithofacies is discussed and paleobotanical aspects interpreted from spore assemblages.

506
Hacquebard, P.A., Barss, M.S. 1970. Palaeogeography and facies aspects of the Minto coal seam, New Brunswick, Canada. In: Compte Rendu, Congrès Internationale de Stratigraphie et de Géologie du Carbonifère (6e : 1967 : Sheffield). Maastricht, The Netherlands: Ernest van Aelst. V.III: 861-872.

This paper provides information on the regional changes in seam thickness and the best seam development, the variations in sulphur content and the extent of the coal basin, with the delineation of the best area for future exploration. Facies changes within the coal seam are determined from petrography and palynology studies.

507
Hacquebard, P.A., Barss, M.S., Birmingham, T.F., Cameron, A.R. 1962. Fuels. In: Summary of Research, Office and Laboratory, 1961, by P. Harker and S.E. Jenness. Geological Survey of Canada Paper 62-30: 19-21.

508
Hacquebard, P.A., Barss, M.S., Birmingham, T.F., Cameron, A.R. 1963. Fuels. In: Summary of Activities, Office and Laboratory, 1962, comp., S.E. Jenness. Geological Survey of Canada Paper 63-2: 60-65.

509
Hacquebard, P.A., Barss, M.S., Donaldson, J.R. 1960. Distribution and stratigraphic significance of small spore genera in the upper Carboniferous of the maritime provinces of Canada. In: Congrès pour l'Avancement des Etudes de Stratigraphie et de Géologie du Carbonifère (4e : 1958 : Heerlen), Compte Rendu. Maastricht, The Netherlands: Ernest van Aelst. V.1: 237-245.

The range chart of 40 spore genera is based on a study of 150 coal samples from the upper Carboniferous of the Maritime provinces. Comparisons are made with western European Namurian and Westphalian assemblages and a revision of the Westphalian C-D boundary is suggested.

510
Hacquebard, P.A., Birmingham, T.F., Donaldson, J.R. 1967. Petrography of Canadian coals in relation to environment of deposition. In: Symposium on Science and Technology of Coal (1967 : Ottawa). Ottawa: Mines Branch. P.84-97.

511
Hacquebard, P.A., Birmingham, T.F., Donaldson, J.R. 1967. Petrography of Canadian coals in relation to environment of deposition. Geological Survey of Canada Paper 67-1B: 51-52.

512
Hacquebard, P.A., Buckley, D.E., Vilks, G. 1981. The importance of detrital particles of coal in tracing the provenance of sedimentary rocks. Bulletin des Centres de Recherches Exploration-Production Elf-Aquitaine 5(2): 555-572.

513
Hacquebard, P.A., Cameron, A.R., Donaldson, J.R. 1964. A depositional study of the Harbour seam, Sydney coalfield, Nova Scotia. Geological Survey of Canada Paper 64-2: 90-91.

514
Hacquebard, P.A., Cameron, A.R., Donaldson, J.R. 1964. Die ablagerungsbedingungen des flozes harbour im Sydney - Kohlengebiet von Neuschottland, Kanada [a depositional study of the Harbour seam, Sydney coalfield, Nova Scotia, Canada]. In: Potonie festschrift. Fortschritte Geologie Rheinland und Westfalen 12: 331-356. Also published in English in Geological Survey of Canada Paper 65-15, 31p.

A study of the sedimentation, coal petrology and palynology of one coal seam over an entire coalfield shows that different coal facies are derived from different plant associations. A paleoecological picture is presented which is based on these facies.

515
Hacquebard, P.A., Cameron, A.R., Forgeron, S.V., Potter, W.C., Shaw, W.S., Smith, E.N. 1978. Geology of Carboniferous coal deposits in Nova Scotia. In: Geological Association of Canada Annual Meeting (1978 : Toronto) Field Trips Guidebook, ed., A.L. Currie. Toronto: Geological Association of Canada. P.43-64.

The guidebook describes the geology of the Sydney, Mabou, and Pictou coalfields. For each area the sedimentological setting and general coal geology is presented with measured shore sections, cross-sections and descriptive notes. The differences between the paralic and limnic environments of coal deposition form one of the main themes of the field trip.

516
Hacquebard, P.A., Donaldson, J.R. 1964. Stratigraphy and palynology of the Upper Carboniferous coal measures in the Cumberland Basin of Nova Scotia. Geological Survey of Canada Paper 64-2: 9-10.

517
Hacquebard, P.A., Donaldson, J.R. 1964. Stratigraphy and palynology of the Upper Carboniferous coal measures in the Cumberland Basin of Nova Scotia, Canada. In: Compte rendu, Congrès Internationale de Stratigraphie et de Géologie du Carbonifère (5e : 1963 : Paris). V.3: 1157-1169.

The lithology, stratigraphy and miospore distribution in the coal measure sequences at Joggins and Springhill is presented. The two productive coal zones are of the same age, both belonging to the "high" lycospora zone, which is regarded as middle Westphalian B. The sequence at Spicer Cove, however, is Westphalian C as it compares with the lonchopteris zone of the Morien series.

518
Hacquebard, P.A., Donaldson, J.R. 1965. Carboniferous coal deposition associated with flood-plain and limnic environments in Nova Scotia. Geological Survey of Canada Paper 64-2: 70-71.

519
Hacquebard, P.A., Donaldson, J.R. 1966. Structural problems in relation to coal mining at Springhill, N.S. Geological Survey of Canada Paper 66-2: 61.

520
Hacquebard, P.A., Donaldson, J.R. 1969. Carboniferous coal deposition associated with flood-plain and limnic environments in Nova Scotia. In: Environments of Coal Deposition, ed., E.C. Dapples and M.E. Hopkins. Geological Society of America Special Paper 114: 143-191.

The effect of the environment of deposition on seam development, seam termination and coal composition is illustrated for the Sydney and Pictou coalfields. For each field, lithofacies maps, regional cross-sections through the seams, and palynological petrographic profiles have been compiled. In addition, diagrams showing facies changes (based on petrography of column samples) in eight seams from Sydney are included.

521
Hacquebard, P.A., Donaldson, J.R. 1969. Coal metamorphism and hydrocarbon potential in the Upper Paleozoic of the Atlantic provinces. Geological Survey of Canada Paper 69-1B: 4-7.

522
Hacquebard, P.A., Donaldson, J.R. 1970. Coal metamorphism and hydrocarbon potential in the Upper Paleozoic of the Atlantic provinces, Canada. Canadian Journal of Earth Sciences 7(4): 1139-1163.

Coal rank (as determined by vitrinite reflectance) can be related to hydrocarbon prospectivity. The included iso-reflectance map of the Maritime provinces is based on reflectance determinations of 178 samples of coal or coaly materials and outlines areas with oil potential in the Paleozoic.

523
Hacquebard, P.A., Donaldson, J.R. 1972. Rank studies of coals in the Rocky Mountains and inner foothills belt, Canada. Geological Survey of Canada Paper 72-1B: 9-10.

524
Hacquebard, P.A., Donaldson, J.R. 1974. Rank studies of coals in t F cky Mountains and inner foothills belt, Canada. In: Carbonaceous Materials as Indicators of Metamorphism, ed., R.R. Dutcher, P.A. Hacquebard, J.M. Schopf, and J.A. Simon. Geological Society of America Special Paper 153: 75-93.

Rank changes (determined by vitrinite reflectance) in ten stratigraphic sequences show that coalification in the foothills belt is pre-orogenic and not affected by tectonic deformation. Thermal metamorphism is considered the primary agent. The effect of the coalification gradient on the availability of coking coals is discussed, and the value of Ro rank determinations for correlating coal seams is pointed out.

525
Hacquebard, P.A., Lahiri, K.C. 1954. Petrographic examination of washed, screened and crushed samples of coal from the Sydney and St. Rose coalfields, Nova Scotia. Economic Geology 49: 837-862.

Coals of different petrographic composition can be produced through special preparation techniques. Such coals have different physical and chemical properties, so can be utilized for various purposes.

526
Hacquebard, P.A., Tibbetts, T.E. 1960. Practical significance of coal petrography to coking. In: Proceedings of the Dominion-Provincial Coal Research Conference (12th : 1960 : Ottawa). Ottawa: Department of Mines and Technical Surveys, Mines Branch. P.13-57. (Fuels and Mining Practice Division Internal Report FMP 61/128-prep)

This paper consists of two parts. In part I, Hacquebard compares the petrography of an eastern and western coking coal with physico-chemical tests, such as grindability. It was found that in these high volatile "a" bitumino coals the inertinite rich parts produce a stronger coke. In part II, Tibbetts describes the coking mechanism and types of laboratory coking tests.

527
Hada, S. 1980. Pre-Carboniferous evolution of the Newfoundland Appalachians. Geological Survey of Canada Paper 80-8. 21p. + 4 graphs.

The pre-Carboniferous evolution of the Newfoundland Appalachians is illustrated by structural and restored sections and a stratigraphic and tectonic correlation chart.

528
Hall, B.R., Keen, C.E., Barrett, D.L. 1975. Results of magnetic surveys in the Newfoundland basin and their interpretation [abstract]. In: International Union of Geodesy and Geophysics General Assembly (16th : 1975 : Grenoble, France), Abstracts of Papers Presented at the Interdisciplinary Assembly. Grenoble: The Conference. P.61-62.

529
Hall, J.M., Barrett, D.L., Keen, C.E. 1977. The volcanic layer of the ocean crust adjacent to Canada - A review. In: Volcanic Regimes in Canada, ed., W.R.A. Baragar, L.C. Coleman, J.M. Hall. Toronto: Geological Association of Canada. P.425-444. (Geological Association of Canada Special Paper 16) (BIO Contribution No. 800)

This paper reviews the volcanic regimes of ocean crust adjacent to Canada including seamount provinces with emphasis on volcanology.

530
Hardy, I.A. 1974. Depositional history and facies distribution of the Tertiary system on the Scotian Shelf. Geological Survey of Canada Paper 74-1B: 137-138.

An informal lithostratigraphic subdivision is proposed for the upper Cretaceous-Tertiary Banquereau Formation.

531
Hardy, I.A. 1975. Lithostratigraphy of the Banquereau Formation on the Scotian Shelf. In: Offshore Geology of Eastern Canada: Volume 2 - Regional Geology, ed., W.J.M. Van der Linden and J.A. Wade. Geological Survey of Canada Paper 74-30(2): 163-174. (BIO Contribution No. 555)

From lithostratigraphic data, the Upper Cretaceous-Tertiary Banquereau Formation is subdivided into four informal units: (1) the Maskonomet argillaceous mudstones of Campanian to Maastrichtian age, which conformably overlie the Wyandot Formation; (2) the Naskwauk argillaceous, glauconitic sandstones and mudstones of Paleocene to Eocene age; (3) the Manhasset argillaceous, glaunitic sandstones of Oligocene age; and (4) the Esperanto unconsolidated sandstones and interbedded claystones.

532
Hardy, I.A. 1982. Late Quaternary ecochronostratigraphy for the inner Labrador Shelf [abstract]. In: Joint Oceanographic Assembly (1982 : Halifax, N.S.), Poster Abstracts. Halifax: The Conference. V.2: 43.

533
Hardy, I.A. 1984. Atlantic Geoscience Centre Quaternary Biostratigraphic Database. In: Annual Arctic Workshop (13th : 1984 : Institute of Arctic and Alpine Research, Boulder, Co). Boulder, Co: The Workshop. P.16.

An integrated data system originally implemented by Program Support and EPG subdivisions at the Atlantic Geoscience Centre, BIO has proved versatile enough to both manage and manipulate the Quaternary biostratigraphic data derived from the vast subsampling and coring program on the Labrador and southeastern Baffin Island shelves, eastern Canada. Data for over 150 stations and 330 metres of sample have been recorded to date.

534
Hardy, I.A. 1984. Quaternary biostratigraphic database [abstract]. In: Atlantic Geoscience Society Colloquium on Current Research in the Atlantic provinces (1984 : [Amherst, N.S.]), Abstracts. [s.l.]: The

Colloquium. P.17. Also published in Maritime Sediments and Atlantic Geology 20(2): 118.

An integrated data system originally implemented by Program Support and Eastern Petroleum Geology subdivisions at AGC has proven versatile enough to both manage and manipulate the Quaternary biostratigraphic data derived from Baffin Island shelves.

535
Hardy, I.A., Jackson, A.E. 1980. A compilation of geochemical data: East coast exploratory wells. Geological Survey of Canada Open File 694. 9p. + unpaged appendices.

536
Hardy, I.A., Umpleby, D.C. 1976. Lithostratigraphy of the Labrador Shelf. Geological Survey of Canada Paper 76-1B: 31-36.

From the lithostratigraphic study of the Mesozoic-Cenozoic sediments of three wells drilled on the Labrador Shelf, an informal subdivision is proposed. The lithostratigraphy is based on the microscopic examination of ditch cuttings, and correlation to mechanical logs. The depositional history is also discussed.

537
Harper, J.R., Blasco, S.M., Hill, P.R. 1983. Modern sediment dispersal and Holocene sediment budget of the Canadian Beaufort Sea [abstract]. Geological Association of Canada/Mineralogical Association of Canada/Canadian Geophysical Union, Program with Abstracts 8: A30.

538
Harris, I.M. 1971. Anomalous quartz and calcite bodies in the Goldenville Formation, Taylor Head, Nova Scotia. Maritime Sediments 7(3): 123-125.

Bodies of quartz and calcite from 2 mm to 20 mm in length in metasedimentary flyschoid rocks of the Goldenville Formation at Taylor Head, Nova Scotia have extraordinary shapes and a problematical origin.

539
Harris, I.M. 1974. Iceberg marks on the Labrador Shelf. In: Offshore Geology of Eastern Canada: Volume 1 - Concepts and Applications of Environmental Marine Geology, ed., B.R. Pelletier. Geological Survey of Canada Paper 74-30(1): 97-101. (BIO Contribution No. 444)

Sonar depth-sounding and side-scanning results indicate that marks formed by the dragging of icebergs over the sea bottom are widespread but not uniformly distributed on the continental shelf and upper continental slope off Labrador and northeastern Newfoundland.

540
Harris, I.M. 1975. Society of economic paleontologists and mineralogists (eastern section) field trip (1975): Introduction and Itinerary. Maritime Sediments 11(1): 9-15.

This paper introduces the guidebook for the eastern section S.E.P.M. Field trip (1975), summarizes the regional geology of Nova Scotia, and provides a geographic guide to the field stops.

541
Harris, I.M., Jollymore, P.G. 1974. Iceberg furrow marks on the continental shelf northeast of Belle Isle, Newfoundland. Canadian Journal of Earth Sciences 11(1): 43-52. (BIO Contribution No. 374)

Side-scan sonar imagery indicates the presence of numerous iceberg furrow marks on the continental shelf northeast of Belle Isle, Newfoundland.

542
Harris, I.M., Schenk, P.E. 1975. The meguma group. Maritime Sediments 11(1): 25-46.

543
Haworth, R.T. 1974. Gravity and magnetic natural resource maps (1972), offshore eastern Canada: Philosophy and technique in preparation by computer. International Hydrographic Review 51(1): 131-155. (BIO Contribution No. 453)

Discussion of the basic limitations in the use of a contour map precedes a technical discussion of the map production method. Deficiencies are noted in the data collection, processing and chart preparation techniques.

544
Haworth, R.T. 1974. Natural resource map preparation and potential field data interpretation. Geological Survey of Canada Paper 74-60: 83.

545
Haworth, R.T. 1975. Paleozoic continental collision in the northern Appalachians in light of gravity and magnetic data in the Gulf of St. Lawrence. In: Offshore Geology of Eastern Canada: Volume 2 - Regional Geology, ed., W.J.M. Van der Linden and J.A. Wade. Geological Survey of Canada Paper 74-30(2): 1-10. (BIO Contribution No. 554)

546
Haworth, R.T. 1975. The development of Atlantic Canada as a result of continental collision - Evidence from offshore gravity and magnetic data. In: Canada's Continental Margins and Offshore Petroleum Exploration, ed., C.J. Yorath, E.R. Parker and D.J. Glass. Calgary:

Canadian Society of Petroleum Geologists in association with the Geological Association of Canada. P.59-77. (Canadian Society of Petroleum Geologists Memoir 4) (BIO Contribution No. 529)

Crude sand models simulating mid-Paleozoic collision between a stepped North American and a straight edged African continent develop transcurrent faults parallel to the colliding margins and in the direction of their approach. The prominent collector anomaly traces the latter fault system, and its tributaries outline the deformation of eastern Newfoundland and adjacent marine areas.

547
Haworth, R.T. 1976. Geology northeast of Newfoundland [abstract]. Maritime Sediments 12(1): 36.

548
Haworth, R.T. 1976. Gravity, 3. Atlantic Geoscience Centre [Surveys 1976]. Canadian Geophysical Bulletin 29: 21-22.

The activities of AGC related to gravity measurements are summarized.

549
Haworth, R.T. 1977. Appalachian structural trends northeast of Newfoundland as delineated by detailed seismic reflection, magnetic and gravity survey [abstract]. Geological Society of America, Abstracts with Programs 9(3): 273.

The central mobile belt of Newfoundland trends northward offshore while the Avalon zone trends eastward thereby invalidating some of the earlier conclusions regarding pre-continental drift, trans-Atlantic correlations.

550
Haworth, R.T. 1977. The continental crust northeast of Newfoundland and its ancestral relationship to the Charlie fracture zone. Nature 266(5599): 246-249. (BIO Contribution No. 628)

The offshore extension of Newfoundland's Dover fault provided the line of weakness for development of the Charlie (Gibbs) fracture zone, and controlled the subsidence of the northeast Newfoundland shelf. Magnetic trends on the shelf are aligned with Hercynian trends in Europe.

551
Haworth, R.T. 1978. An interactive graphics approach to the combined interpretation of gravity and magnetic data [abstract]. Eos; Transactions, American Geophysical Union 59(12): 1032.

552
Haworth, R.T. 1978. Interpretation of geophysical data in the northern Gulf

of St. Lawrence and its relevance to Lower Paleozoic geology. Geological Society of America Bulletin 89(7): 1091-1110. (BIO Contribution No. 770)

553
Haworth, R.T. 1979. Magnetic and bouguer gravity anomaly compilations for the Appalachians. Geological Survey of Canada Open File 615. 15p.

Magnetic anomaly and bouguer anomaly maps of the Appalachians are presented with, and at the same 1:1,000,000 scale as Williams' tectonic lithofacies map of the Appalachians.

554
Haworth, R.T. 1980. Appalachian structural trends northeast of Newfoundland and their trans-Atlantic correlation. Tectonophysics 64(1/2): 111-130.

The trends of the Appalachian system on the continental shelf are correlated.

555
Haworth, R.T. 1980. Geophysical elements of the Canadian Appalachians: An aid to interpolation between the structure of the caledonides of the USA and Europe [abstract]. In: Proceedings, "The Caledonides in the USA", ed., D.R. Wones. Blacksburg, Va: Virginia Polytechnic Institute and State University. P.A12. (Virginia Polytechnic Institute and State University, Department of Geological Sciences Memoir 2)

556
Haworth, R.T. 1981. Extension of Appalachian trends beneath the eastern Canadian continental margin [abstract]. Geological Society of America, Abstracts with Programs 13(3): 137.

557
Haworth, R.T. 1981. Geophysical expression of Appalachian-Caledonide structures on the continental margins of the North Atlantic. In: Geology of the North Atlantic Borderlands, ed., J.W. Kerr and A.J. Ferguson. Calgary: Canadian Society of Petroleum Geologists. P.429-446. (Canadian Society of Petroleum Geologists Memoir 7)

The trans-Atlantic correlation between Grenville, Avalon and Paleozoic oceanic rocks on the Canadian and European margins is summarized.

558
Haworth, R.T. 1982. The continental margin: Eastern Canada. In: Perspectives in Regional Geological Synthesis Planning for the Geology of North America, ed., A.R. Palmer. Denver: Geological Society of America. P.133-142. (DNAG Special Publication 1)

559
Haworth, R.T., Grant, A.C., Folinsbee, R.A. 1976. Geology of the continental shelf off southeastern Labrador. Geological Survey of Canada Paper 76-1C: 61-70.

Survey operations as described below in Haworth et al. (1976) were extended northward in 1976, and the geological map was extended accordingly.

560
Haworth, R.T., Jacobi, R.D. 1983. Geophysical correlation between the geological zonation of Newfoundland and the British Isles. In: Contributions to the Tectonics and Geophysics of Mountain Chains, ed., R.D.Hatcher Jr., H. Williams, and I. Zietz. Boulder, Co: Geological Society of America. P.25-32. (Geological Society of America Memoir 158)

561
Haworth, R.T., Keen, C.E. 1978. The Canadian Atlantic continental margin as an indicator of possible variations in the structural style of continental margins, past and present [abstract]. In: Crustal Properties across Passive Margins, Inter-Union Commission on Geodynamics, Commission on Marine Geology, Program and Abstracts. Halifax, NS: The Symposium. P.16.

562
Haworth, R.T., Keen, C.E. 1979. The Canadian Atlantic margin: a passive continental margin encompassing an active past. In: Crustal Properties across Passive Margins, ed., C.E. Keen. Tectonophysics 59(1-4): 83-126. (Inter-Union Commission on Geodynamics Scientific Report 51) (BIO Contribution No. 878) Also published in: Crustal Properties across Passive Margins: Selected papers from the symposium (1978 : Halifax, N.S.), ed., C.E. Keen. Amsterdam: Elsevier, p.139-150. (Developments in Geotectonics 15)

The Canadian Atlantic margin today shows the wide variety of properties of a passive margin but the craton that forms that margin was created by a very active past involving phases of subduction.

563
Haworth, R.T., Keen, C.E., Williams, H. 1982. Evolution of northern Appalachians and Atlantic margin [abstract]. Geological Society of America, Abstracts with Programs 14(7): 511.

564
Haworth, R.T., Keen, C.E., Williams, H. 1982. Northern Appalachians and Atlantic margin: Transect D1 [abstract]. Geological Society of America, Abstracts with Programs 14(7): 511.

565
Haworth, R.T., Keen, C.E., Williams, H. 1983. A cross-section of the Canadian Appalachians [abstract]. In: International Union of Geodesy and Geophysics General Assembly (18th : 1983 : Hamburg, Germany), Inter-Union Commission on the Lithosphere, Programme and Abstracts. Hamburg: The Conference. P.73.

566
Haworth, R.T., Lefort, J.P. 1977. Etude géophysique des fractures du socle submerge a l'ouest de l'Europe et a l'est du Canada [abstract] - Fracturation tardi-Hercynienne et corrélations transatlantiques. In: Reunion Annuelle des Sciences de la Terre (5e : 1977 : Rennes, France). Paris: La Conference. P.269.

Late Carboniferous fractures of the North American and European (Iberian) plates, provide constraints on the opening of the North Atlantic.

567
Haworth, R.T., Lefort, J.P. 1979. Geophysical evidence for the extent of the Avalon zone in Atlantic Canada. Canadian Journal of Earth Sciences 16(3/part 1): 552-567. (BIO Contribution No. 844)

Magnetic anomaly patterns associated with the volcanic rocks of the Avalon zone allow the extent of that zone to be mapped throughout the water-covered areas of Atlantic Canada.

568
Haworth, R.T., Lefort, J.P., Miller, H.G. 1978. Geophysical evidence for an east-dipping Appalachian subduction zone beneath Newfoundland. Geology 6(9): 522-526. (BIO Contribution No. 771)

Sheridan and Drake's (1968) refraction data supported by AGC geophysical and geological data show that an ultramafic layer dips southeastward beneath Newfoundland.

569
Haworth, R.T., Lefort, J.P., Miller, H.G. 1979. Geophysical evidence for an east-dipping Appalachian subduction zone beneath Newfoundland - reply. Geology 7(10): 471-473.

The questions of our model raised by Currie et al. are as unanswerable as by any other model existing, but our model has answered other questions. Currie's questions do not refute the model but rather question our knowledge of the processes.

570
Haworth, R.T., Loncarevic, B.D. 1974. Inverse filter applied to the output of an Askania GSS-2 sea gravimeter. Geophysics 39(6): 852-861. (BIO Contribution No. 473)

The weighting function technique used by the Atlantic Geoscience Centre by which phase and amplitude of gravity measurements are restored saves a considerable amount of data.

571
Haworth, R.T., MacIntyre, J.B. 1975. The gravity and magnetic fields of Atlantic offshore Canada. Geological Survey of Canada Paper 75-9. 22p. (Marine Sciences Paper 16) (BIO Contribution No. 511)

Bouguer gravity anomaly and magnetic anomaly maps compatible with CHS bathymetric maps 801 and 802 have been compiled for the area 42°N to 5½°N, 43°W to 68°W. The maps reflect major flexed lineations associated with the Appalachian front and the deformation of the Avalon platform, possibly resulting from Paleozoic continental collision.

572
Haworth, R.T., MacIntyre, J.B. 1977. Gravity and magnetic fields of the Gulf of St. Lawrence, Canada. Geological Survey of Canada Paper 75-42. 11 p. + 2 maps. (Marine Sciences Paper 15) (BIO Contribution No. 634)

573
Haworth, R.T., Macnab, R.F. 1973. Gravity and magnetic data, Atlantic continental margin. Geological Survey of Canada Open File 183. 51p.

The open file releases of all digital data used in the preparation of natural resource series maps up to and including the MINNA 1972 cruise.

574
Haworth, R.T., Miller, H.G. 1979. Subsurface structure of Paleozoic oceanic rocks in Notre Dame Bay, Newfoundland [abstract]. Geological Association of Canada - Mineralogical Association of Canada Joint Annual Meeting, Program with Abstracts 4: 56.

575
Haworth, R.T., Miller, H.G. 1982. The structure of Paleozoic oceanic rocks beneath Notre Dame Bay, Newfoundland. In: Major Structural Zones and Faults of the Northern Appalachians, ed., P. St.-Julien and J. Beland. Geological Association of Canada Special Paper 24: 149-173.

576
Haworth, R.T., Poole, W.H., Grant, A.C., Sanford, B.V. 1976. Marine geoscience survey northeast of Newfoundland. Geological Survey of Canada Paper 76-1A: 7-15.

Bathymetric, magnetic, gravity and seismic data were collected along eastwest transects of northeast Newfoundland. Potential drilling sites were defined by the air gun seismic data, and were examined closely by the deep-tow (Huntec) profiler system. Several of the rock units interpreted from geophysical data were sampled by drilling. The data was used to compile a geological map for the area.

577
Haworth, R.T., Sanford, B.V. 1976. Paleozoic geology of northeast Gulf of St. Lawrence. Geological Survey of Canada Paper 76-1A: 1-6.

Bedrock samples from morphological features surveyed with the Huntec high resolution seismic system have provided additional geological control for the interpretation of seismic reflection data in the northeast Gulf of St. Lawrence. A preliminary geological map is presented.

578
Haworth, R.T., Wells, I. 1980. Interactive computer graphics method for the combined interpretation of gravity and magnetic data. Marine Geophysical Researches 4(3): 277-290. (BIO Contribution No. 1017)

Two dimensional interpretations of gravity and magnetic data are carried out more efficiently using this new interactive graphics approach.

579
Hayes, D.E., Frakes, L.A., Barrett, P.J., Burns, D.A., Chen, P.-H., Ford, A.B., Kaneps, A.G., Kemp, E.M., Mccollum, D.W., Piper, D.J.W., Wall, R.E., Webb, P.N. 1975. Shipboard site reports: Sites 264-274. In: Initial Reports of the Deep Sea Drilling Project, D.E.Hayes, L.A. Frakes, et al. Washington: U.S. Government Printing Office. V.28: 5-433.

580
Hayes, D.E., Frakes, L.A., Barrett, P.J., Burns, D.A., Chen, P.-H., Ford, A.B., Kaneps, A.G., Kemp, E.M., Piper, D.J.W., Wall, R.E., Webb, P.N. 1973. Leg 28, Deep Sea Drilling in the southern ocean. Geotimes 18(6): 19-24.

581
Hay, A.E., Heffler, D. 1984. Design Considerations for an Acoustic Sediment Transport Monitor for the Nearshore Zone. Ottawa: National Research Council Canada, Associate Committee for Research on Shoreline Erosion and Sedimentation. 37p. (Canadian Coastal Sediment Study C2S2 = Etude Canadienne des Sediments Littoraux ECSL, report C2S2-4)

582
Heffler, D.E. 1974. A timing correction for real time seismic signal processing. In: Ocean '74; IEEE International Conference on Engineering in the Ocean Environment (5th : 1974 : Halifax, N.S.); Record. New York: Institute of Electrical and Electronic Engineers. V.2: 212-217. (IEEE Publication 74 CHO 873-0 occ) (BIO Contribution No. 460)

This paper describes the use of a small computer for real time seismic signal processing at sea. In particular, a timing correction is described which improves the processing effectiveness of simple dereverberation schemes.

583
Heffler, D. 1974. Real time seismic signal processing. Geological Survey of Canada Paper 74-60: 26.

584
Heffler, D.E. 1980? RALPH - A sediment dynamics monitor. In: Proceedings, Workshop on Instrumentation for Currents and Sediments in the Nearshore Zone (1979 : Ottawa). Ottawa: Associate Committee for Research on Shoreline Erosion and Sedimentation. P.163-173. (BIO Contribution No. 937)

585
Heffler, D. 1983. Ocean bottom seismometers. BIO Review '83: 49-50.

586
Heffler, D.E. 1984. An ocean bottom seismometer release by electrolytic corrosion. Marine Geophysical Researches 6(4): 447-454.

Description of BIO OBS modifications since last reporting in MGR, 1979. Detailed description of new release mechanism and table showing OBS use since 1978.

587
Heffler, D.E. 1984. General engineering considerations in accoustic suspended sediment detection. In: Design Considerations for an Acoustic Sediment Transport Monitor for the Nearshore Zone, by A.E. Hay and D. Heffler. Ottawa: National Research Council Canada, Associate Committee for Research on Shoreline Erosion and Sedimentation. P.35. (Canadian Coastal Sediment Study C2S2= Etude Canadienne des Sediments Littoraux ECSL, report C2S2-4)

588
Heffler, D.E. 1984. RALPH - An instrument to monitor seabed sediments. Geological Survey of Canada Paper 84-1B: 47-52.

RALPH is an instrument to monitor the dynamics of sediment in the nearshore and continental shelf zones. It includes current meters, a depth gauge, an optical transmissometer and a time lapse camera. It contains a computer for intelligent interval recording. Some data gathered at Martinique Beach, Nova Scotia, is discussed.

589
Heffler, D.E., Barrett, D.L. 1979. OBS development at Bedford Institute of Oceanography. Marine Geophysical Researches 4(2): 227-245. (BIO Contribution No. 895)

590
Heffler, D., Forbes, D. 1983. RALPH. *BIO Review* '83: 50.

591
Heffler, D.E., Locke, D.R. 1977. A deep ocean release mechanism. *Marine Geophysical Researches* 3(2): 229-232. (BIO Contribution No. 672)

A simple release system for a deep ocean instrument package is described. An evacuated chamber holds the instrument to the anchor and an explosive device floods the chamber, allowing the instrument to float to the surface after a preset time.

592
Hill, P.R. 1981. Erosion of old slump-scar on Nova Scotian slope and possible mid-slope depositional lobe. *American Association of Petroleum Geologists Bulletin* 65(5): 938.

593
Hill, P.R. 1983. Detailed morphology of a small area on the Nova Scotian continental slope. *Marine Geology* 53(1/2): 55-76.

594
Hill, P.R. 1984. Facies and sequence analysis of Nova Scotian slope muds: turbidite vs 'hemipelagic' deposition. In: *Fine-grained Sediments: Deep-water Processes and Facies*, ed., D.A.V. Stow and D.J.W. Piper. Oxford: published for the Geological Society by Blackwell Scientific Publications. P.311-318.

595
Hill, P.R. 1984. Sedimentary facies of the Nova Scotian upper and middle continental slope, offshore eastern Canada. *Sedimentology* 31(3): 293-309.

596
Hill, P.R., Aksu, A.E., Piper, D.J.W. 1982. The deposition of thin bedded subaqueous debris flow deposits. In: *Marine Slides and Other Mass Movements*, ed., S. Saxov and J.K. Nieuwenhuis. New York: Plenum Press. P.273-287. (Nato Conference Series IV; Marine sciences 6)

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Jansa, L.F., Enos, P., Tucholke, B.E., Gradstein, F.M., Sheridan, R.E. 1979. Mesozoic-Cenozoic sedimentary formations of the North American basin; western North Atlantic. In: Deep Drilling Results in the Atlantic Ocean: Continental Margins and Paleoenvironment, ed., M. Talwani, W. Hay and W.B.F. Ryan. Washington: American Geophysical Union. P.1-57. (Maurice Ewing Series 3) (BIO Contribution No. 964)

This is the first attempt to establish modern ocean basin stratigraphy in the North Atlantic. Stratigraphic results of ten years of deep sea drilling in the western North Atlantic have been compiled. A stratigraphic framework for the Mesozoic-Cenozoic basin is established and formal stratigraphic nomenclature for sedimentary sequences of the North American basin is presented. Geologic development of the basin is discussed from the presented data.

686
Jansa, L.F., Fischbuch, N.R. 1974. Evolution of a middle and upper Devonian sequence from a clastic coastal plain-deltaic complex into overlying carbonate reef complexes and banks, Sturgeon-Mitsue area, Alberta. Geological Survey of Canada Bulletin 234. 105p.

687
Jansa, L.F., Gardner, J.V., Dean, W.E. 1978. Mesozoic sequences of the central North Atlantic. In: Initial Reports of the Deep Sea Drilling Project, Y. Lancelot, E. Seibold, et al. Washington: U.S. Government Printing Office. V.41: 991-1032. (BIO Contribution No. 819)

Results of a comprehensive regional study of Mesozoic sedimentary sequences drilled by DSDP in the southern North Atlantic are published for the first time. The study demonstrated the similarity between the development of Mesozoic sediments in both the western and eastern North Atlantic.

688
Jansa, L.F., Gradstein, F.M., Harris, I.M., Jenkins, W.A.M., Williams, G.L. 1976. Stratigraphy of the Amoco-IOE Murre G-67 well, Grand Banks of Newfoundland. Geological Survey of Canada Paper 75-30. 14p.

This paper describes the most complete Jurassic stratigraphic sequence found in eastern North America, sediment composition and environments of deposition, and indicated affinities with the European Jurassic sequences.

689
Jansa, L.F., Gradstein, F.M., Williams, G.L., Jenkins, W.A.M. 1977. Geology of the Amoco Imp. Skelly A-1 Osprey H-84 well, Grand Banks, Newfoundland. Geological Survey of Canada Paper 77-21. 17p.

Upper Triassic evaporites are recorded in the northwest Atlantic for the first time. These are sequentially overlain by marine lower Jurassic, upper Cretaceous, and Tertiary sediments.

690
Jansa, L.F., Macqueen, R.W. 1978. Stratigraphy and hydrocarbon potential of the central North Atlantic basin. Geoscience Canada 5(4): 176-183.

The hydrocarbon potential of the basin is discussed on the basis of DSDP data and oil exploration results on the American shelf.

691
Jansa, L.F., Mamet, B.L. 1984. Offshore Visean of eastern Canada; paleogeographic and plate tectonic implications. In: International Congress on Carboniferous Stratigraphy and Geology (9th : 1979 : Washington, D.C. and University of Illinois at Urbana-Champaign), Compte Rendu; Vol. 3, part 1. Atlantic Coast Basins, ed., H.H.J. Geldsetzer. Carbondale and Edwardsville: Southern Illinois University Press. P.205-214.

New paleontological data from Visean limestone off Newfoundland demonstrate that current plate tectonics reconstruction of the Carboniferous are in conflict and new reconstruction is suggested in the paper.

692
Jansa, L.F., Mamet, B.L., Roux, A. 1978. Visean limestones from the Newfoundland shelf. Canadian Journal of Earth Sciences 15(9): 1422-1436. (BIO Contribution No. 782)

Sedimentological and micropaleontological studies of the Lower Carboniferous limestones off northeast Newfoundland allow correlation with the Windsor limestone of Nova Scotia. Discrepancies in current paleogeographic and plate tectonic restorations of eastern Canada and Europe are discussed.

693
Jansa, L.F., Remane, J., Ascoli, P. 1980. Calpionellid and foraminiferal-ostracod biostratigraphy at the Jurassic-Cretaceous boundary, offshore eastern Canada. Rivista Italiana di Paleontologia e Stratigrafia 86(1): 67-126.

First description of calpionellid occurrences on the western North Atlantic margin. The occurrence is important to delineation of the Jurassic-Cretaceous boundary. Results are also interpreted in view of paleooceanographic factors in the North Atlantic.

694
Jansa, L.F., Termier, G., Termier, H. 1982. Les biohermes à Algues, Spongiaires et Coraux des series carbonateés de la flexure bordière du "paleoshelf" au large du Canada oriental. Revue de Micropaléontologie 25(3): 181-219.

The paper gives a systematic description of Jurassic sponge fauna recovered in cores from east coast offshore wells. The sponge assemblages are compared with coeval European assemblages. There is also a discussion of the evolution of hydrozoan reef fauna and their contribution to reef formation.

695
Jansa, L.F., Wade, J.A. 1974. Geology of the continental margin of southeastern Canada [abstract]. In: GAC/MAC '74; Annual Meetings, Geological Association of Canada [and] Mineralogical Association of Canada (1974 : St. John's, Nfld), Program Abstracts, 3rd Circular. [St. John's: The Conference]. P.45.

696
Jansa, L.F., Wade, J.A. 1975. Geology of the continental margin off Nova Scotia and Newfoundland. In: Offshore Geology of Eastern Canada: Volume 2 - Regional Geology, ed., W.J.M. Van der Linden and J.A. Wade. Geological Survey of Canada Paper 74-30(2): 51-105. (BIO Contribution No. 557)

A presentation of the regional geological framework and stratigraphy of the Atlantic margin of Canada, based on lithostratigraphy, well data and deep reflection seismic. Proposes names for 17 tectonic elements, four formations and two informal lithostratigraphic units. A model for the continental breakup of the present circum-Atlantic region is presented.

697
Jansa, L.F., Wade, J.A. 1975. Paleogeography and sedimentation in the Mesozoic and Cenozoic, southeastern Canada. In: Canada's Continental Margins and Offshore Petroleum Exploration, ed., C.J. Yorath, E.R. Parker and D.J. Glass. Calgary: Canadian Society of Petroleum Geologists in association with the Geological Association of Canada.

P.79-102. (Canadian Society of Petroleum Geologists Memoir 4) (BIO Contribution No. 527)

A comprehensive treatment of the continental margin geology of eastern Canada with presentation of a new geological fit of the continental plates between North America, Europe and northwest Africa, and a paleogeographic reconstruction of the North Atlantic basin on the basis of circum-North Atlantic margin basin studies.

698

Jansa, L.F., Wade, J.A., Williams, G.L. 1981. Evolution of the continental margin of eastern North America and its relation to hydrocarbons [abstract]. Geological Society of America, Abstracts with Programs 13(3): 139.

699

Jansa, L.F., Wiedmann, J. 1982. Mesozoic-Cenozoic development of the eastern North American and northwest African continental margins: a comparison. In: Geology of the Northwest African Continental Margin, ed., U. Von Rad, K. Hinz, M. Sarnthein and E. Seibold. Berlin: Springer-Verlag. P.215-269.

700

Jansa, L.F., Williams, G.L., Wade, J.A., Bujak, J.P. 1978. The COST B-2 well (Baltimore Canyon) and its relation to Scotian basin [abstract]. American Association of Petroleum Geologists Bulletin 62(3): 526.

701

Jansonius, J., Jenkins, W.A.M. 1978. Chitinozoa. In: Introduction to Marine Micropaleontology, ed., B.U. Haq and A. Boersma. New York: Elsevier. P.341-357. (BIO Contribution No. 725)

This is an introductory chapter on chitinozoa for a textbook.

702

Jenkins, W.A.M., Ascoli, P., Gradstein, F.M., Jansa, L.F., Williams, G.L. 1974. Stratigraphy of the Amoco IOE A-1 Puffin B-90 well, Grand Banks of Newfoundland. Geological Survey of Canada Paper 74-61. 12p.

The biostratigraphic and lithostratigraphic studies on the subject well are collated and coordinated. Fossil groups include foraminifers, ostracods, dinoflagellates and spores.

703

Johnson, G.L., Srivastava, S.P. 1982. The case for major displacement along Nares Strait. In: Nares Strait and the Drift of Greenland; A Conflict in Plate Tectonics, ed., P.R. Dawes and J.W. Kerr. Meddelelser om Gronland; Geoscience 8: 365-368.

Summary of Nares Strait symposium

704
Johnson, G.L., Srivastava, S.P., Campsie, J., Rasmussen, M. 1982. Volcanic rocks in the Labrador Sea and environs and their relation to the evolution of the Labrador Sea. Geological Survey of Canada Paper 82-1B: 7-20.

705
Josenhans, H.W. 1981. Evidence for extensive pre-Late Wisconsinan glaciations offshore Labrador, Cartwright Saddle region [abstract]. In: INSTAAR Arctic Workshop (10th : 1981 : Boulder, Colorado). Boulder: The Conference. P.24-25.

706
Josenhans, H.W. 1981. Submarine terraces and other morphologic aspects of the Labrador shelf [abstract]. Eos; Transactions, American Geophysical Union 62(45): 919.

The morphology of the Labrador shelf is described on the basis of extensive Huntec DTS high resolution and 40 cubic inch airgun seismic reflection profiles, together with sidescan sonograms and direct observation from a submersible. Maps showing detailed bathymetry, inferred iceberg scour density, and interpretation of bottom features from sidescan sonograms are presented.

707
Josenhans, H.W. 1982. Pisces IV submersible observations in the Strait of Belle Isle (45 minute video program) [abstract]. Geological Survey of Canada Open File 842. 1p. + video.

708
Josenhans, H.W. 1983. Evidence of pre-Late Wisconsinan glaciations on Labrador shelf - Cartwright Saddle region. Canadian Journal of Earth Sciences 20(2): 225-235.

709
Josenhans, H.W. 1984. Surficial geology of the Labrador shelf. Geological Survey of Canada Open File 1081. 33 maps + [100]p.

This open file report presents maps of acoustic data base, bathymetry, seabed texture, surficial geology and morphology and geological profiles as well as a short report (scale 1:250,000)

710
Josenhans, H.W. 1984. The glacial history of the Labrador shelf [abstract]. In: Annual Arctic Workshop (13th : 1984 : Institute of Arctic and Alpine Research, Boulder, Co). Boulder, Co: The Workshop. P.50.

The geomorphology, distribution, source, physical properties of the glacial and post-glacial sediments of the Labrador shelf are described.

711
Josenhans, H.W., Barrie, J.V. 1982. Preliminary results of submersible observations on the Labrador shelf from scientific and technical notes. Geological Survey of Canada Paper 82-1B: 269-276.

712
Josenhans, H.W., Barrie, J.V. 1982. The effect of icebergs on the Labrador shelf as seen by submersible PISCES IV (18 minute video program) [abstract]. Geological Survey of Canada Open File 843. 1p. + video.

713
Josenhans, H.W., King, L.H., Fader, G.B. 1978. A sidescan sonar mosaic of pockmarks on the Scotian shelf. Canadian Journal of Earth Sciences 15(5): 831-840. (BIO Contribution No. 706)

A sidescan mosaic covering approximately 150km was constructed and the nature of occurrence and origin of pockmarks is discussed.

714
Josenhans, H.W., Zevenhuizen, J. 1984. The glacial and post glacial history of the Labrador shelf, Hopedale Saddle region [abstract]. In: Atlantic Geoscience Society Colloquium on Current Research in the Atlantic Provinces (1984 : [Amherst, N.S.]), Abstracts. [s.l.]: The Colloquium. P.18. Also published in Maritime Sediments and Atlantic Geology 20(2): 101.

715
Keen, C.E. 1966. A study of the physical properties of the oceanic crust and mantle. M.Sc. Thesis, Dalhousie University, Halifax N.S. 99p.

716
Keen, C.E. 1970. A seismic experiment on the Mid-Atlantic ridge. Ph.D. Thesis, Cambridge University, Cambridge U.K. 163p.

717
Keen, C.E. 1973. Continental margin of eastern Canada. Geological Survey of Canada Paper 73-1A: 112-113.

718
Keen, C.E. 1974. Continental margin of eastern Canada. Geological Survey of Canada Paper 74-1A: 132.

719
Keen, C.E. 1974. Some geophysical measurements on the northern shelf of Baffin Bay. In: Proceedings of the Canadian Society of Exploration Geophysicists National Convention (1973 : Calgary, Alberta), ed., A.E. Wren and R.B. Cruz. Calgary, Alta: CSEG. P.67-78. (BIO Contribution No. 469)

This paper describes some geophysical measurements on the northern shelf of Baffin Bay. The sedimentary structures within Jones Sound, Smith Sound, Lancaster Sound and Melville Bay are described. An attempt is made to relate the results to the evolution of the Baffin Bay ocean basin.

720
Keen, C.E. 1974. Some recent results on the continental margin of eastern Canada [abstract]. In: GAC/MAC '74; Annual Meetings, Geological Association of Canada [and] Mineralogical Association of Canada (1974 : St. John's, Nfld.), Program Abstracts, 3rd Circular. [St. John's: The Conference]. P.47.

721
Keen, C.E. 1977. Seismology and physics of the earth's interior; Atlantic Geoscience Centre. Canadian Geophysical Bulletin 30: 33-35.

722
Keen, C.E. 1978. Computation of synthetic seismograms for marine refraction studies. Geological Survey of Canada Paper 78-16. 28p.

723
Keen, C.E. 1978. Seismology and physics of the earth's interior, 3. Atlantic Geoscience Centre - I Seismology, II Physics of the earth's interior. Canadian Geophysical Bulletin 31: 35-36.

Report for the Canadian Geophysical Bulletin on seismology and physics of the earth's interior.

724
Keen, C.E. (Ed.) 1979. Crustal properties across passive margins. Tectonophysics 59(1/4). 390p. (Inter-Union Commission on Geodynamics Scientific Report 51) (also published as: Crustal Properties Across Passive Margins; Selected papers from the Symposium (1978: Halifax, N.S.). Amsterdam: Elsevier. 390 p. (Developments in Geotectonics 15.))

725
Keen, C.E. 1979. Crustal thinning, subsidence, and thermal history of sedimentary basins at rifted margins [abstract]. In: International Union of Geodesy and Geophysics General Assembly (17th : 1979 : Canberra, Australia), Abstracts. Canberra, Australia: The Conference. P.315.

726
Keen, C.E. 1979. Mesozoic and Cenozoic plate tectonics off eastern Canada [abstract]. Eos; Transactions, American Geophysical Union 60(42): 746.

727
Keen, C.E. 1979. Thermal history and subsidence of rifted continental margins - evidence from wells on the Nova Scotian and Labrador shelves. Canadian Journal of Earth Sciences 16(3/part 1): 505-522. (BIO Contribution No. 846)

728
Keen, C.E. 1980. Early evolution of rifted continental margins [abstract]. Eos; Transactions, American Geophysical Union 61(17): 206-207.

This paper reviews the history of development of rifted margins determined from subsidence and deep crustal structure.

729
Keen, C.E. 1980. Seismology and physics of the earth's interior; Atlantic Geoscience Centre. Canadian Geophysical Bulletin 33: 36-38.

730
Keen, C.E. 1981. Lithoprobe; Geoscience studies on the third dimension. Geoscience Canada 8(3): 117-125.

731
Keen, C.E. 1982. Offshore eastern Canada: From plate tectonics to petroleum. Geos 11(3): 5-8.

732
Keen, C.E. 1982. Offshore eastern Canada: From plate tectonics to petroleum. BIO Review '82: 42-46.

733
Keen, C.E. 1982. The continental margins of eastern Canada - A review. In: Dynamics of Passive Margins, ed., R.A. Scrutton. Washington: American Geophysical Union. P.45-58. (Geodynamics Series 6)

The paper briefly reviews the geological and geophysical data available on the passive margins of E. Canada with respect to (a) plate motions and margin formation, (b) the ocean-continent transition and (c) rifting, subsidence and sedimentation.

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Keen, C.E. 1983. Salt diapirs and thermal maturity: Scotian basin. Bulletin of Canadian Petroleum Geology 31(2): 101-108.

735
Keen, C.E., Barrett, D.L. 1972. A seismic refraction survey in Baffin Bay and Davis Strait [abstract]. Eos; Transactions, American Geophysical Union 53(7): 726.

736
Keen, C.E., Barrett, D.L. 1972. Seismic refraction studies in Baffin Bay: An

example of a developing ocean basin. Geophysical Journal 30(3): 253-271. (BIO Contribution No. 315)

This paper describes sonobuoy and tape recording buoy seismic refraction measurements carried out in Baffin Bay and Davis Strait to study the extent and tectonic development of the oceanic region and the structure of some of the major features of the surrounding continental shelves.

737
Keen, C.E., Barrett, D.L. 1973. Structural characteristics of some sedimentary basins in northern Baffin Bay. Canadian Journal of Earth Sciences 10(10): 1267-1278. (BIO Contribution No. 376)

Geophysical measurements were obtained to study some of the major structural features on the northen shelf of Baffin bay. The structural style of the sediments within sedimentary basins in Lancaster Sound, Jones Sound, Smith Sound, and Melville Bay are described. An attempt to relate the results to possible plate motions in the Baffin Bay basin is made.

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Keen, C.E., Barrett, D.L. 1981. Thinned and subsided continental crust on the rifted margin of eastern Canada: Crustal structure, thermal evolution and subsidence history. Geophysical Journal 65(2): 443-465. (BIO Contribution No. 888)

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Keen, C.E., Beaumont, C. 1982. On the evolution of the rifted margin off eastern North America: Comparison of models and observations [abstract]. In: International Congress on Sedimentology (11th : 1982 : McMaster University, Hamilton, Ont.), Abstracts of Papers. Hamilton: McMaster University, Dept. of Geology. P.130.

740
Keen, C.E., Beaumont, C. 1983. The application of extension models to the rifted margins of eastern North America [abstract]. Geological Association of Canada/Mineralogical Association of Canada/Canadian Geophysical Union Program with Abstracts 8: A37.

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Keen, C.E., Beaumont, C., Boutilier, R. 1981. Preliminary results from a thermo-mechanical model for the evolution of Atlantic-type continental margins. In: International Geological Congress (26th : 1980 : Paris) Colloque c3, Géologie des Marges Continentales = Geology of Continental Margins. Oceanologica Acta 4(supplement): 123-128.

742
Keen, C.E., Beaumont, C., Boutilier, R. 1983. A summary of thermo-mechanical model results for the evolution of continental margins based on three

rifting processes. In: Studies in Continental Margin Geology, ed., J.S. Watkins and C.L. Drake. Tulsa, OK: American Association of Petroleum Geologists. P.725-728. (American Association of Petroleum Geologists Memoir 34)

This paper summarizes results of thermo-mechanical model of passive continental margin evolution.

743
Keen, C.E., Blanchard, J.E., Keen, M.J. 1966. Grand Banks and the Eastern Seaboard of Canada. In: The Encyclopedia of Oceanography, ed., R.W. Fairbridge. New York: Reinhold. P.299-305. (Encyclopedia of Earth Sciences Series 1)

744
Keen, C.E., Blanchard, J.E., Keen, M.J. 1966. Gulf of St. Lawrence. In: The Encyclopedia of Oceanography, ed., R.W. Fairbridge. New York: Reinhold. P.331-335. (Encyclopedia of Earth Sciences Series 1)

745
Keen, C.E., Cordsen, A. 1980. OBS refraction results from the continental margin off Nova Scotia [abstract]. Geological Association of Canada/ Mineralogical Association of Canada, Program with Abstracts 5: 65.

746
Keen, C.E., Cordsen, A. 1981. Crustal structure, seismic stratigraphy, and rift processes of the continental margin off eastern Canada: Ocean bottom seismic refraction results off Nova Scotia. Canadian Journal of Earth Sciences 18(10): 1523-1538.

747
Keen, C.E., Falconer, R. 1979. Continental margins of the Arctic Ocean. In: Continental Margins; Geological and Geophysical Research Needs and Problems. Washington, D.C.: National Academy of Sciences. P.102-107.

748
Keen, C.E., Fricker, A., Keen, M.J., Blinn, L. 1979. A study of the Reykjanes Ridge by surface waves using an earthquake-pair technique. Geological Survey of Canada Paper 79-1A: 273-279.

Surface waves dispersion curves were constructed for Love and Rayleigh waves confined to paths along the axis of the Reykjanes Ridge, using an earthquake-pair method. Linear inversion methods were applied to the dispersion data and s velocity-depth models were obtained which showed the presence of a low-velocity zone at a depth of 20 km below the ridge.

749
Keen, C.E., Fricker, A., Keen, M.J., Blinn, L. 1980. Reykjanes Ridge crest studied by surface waves with an earthquake-pair technique. Journal of Geophysics 47(1/3): 265-270.

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Keen, C.E., Hall, B.R., Sullivan, K.D. 1977. Mesozoic evolution of the Newfoundland basin. Earth and Planetary Science Letters 37(2): 307-320. (BIO Contribution No. 659)

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Keen, C.E., Haworth, R.T. 1982. Present passive margins of eastern Canada: Transects D2-4 [abstract]. Geological Society of America, Abstracts with Programs 14(7): 526.

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Keen, C.E., Hyndman, R.D. 1979. Geophysical review of the continental margins of eastern and western Canada. Canadian Journal of Earth Sciences 16(3/part 2): 712-747. (BIO Contribution No. 851)

753
Keen, C.E., Keen, M.J. 1974. The continental margins of eastern Canada and Baffin Bay. In: The Geology of Continental Margins, ed., C.A. Burke and C.L. Drake. New York: Springer-Verlag. P.381-389. (BIO Contribution No. 471)

The continental margin of eastern Canada is predominantly a rifted margin extending some 32 degrees of latitude from Nova Scotia to Ellesmere Is. The northern margins of Labrador Sea and Baffin Bay formed at a later date than that off Nova Scotia and are separated from it by the Grand Banks where southern edge formed by transform faulting.

754
Keen, C.E., Keen, M.J., Barrett, D.L., Heffler, D.E. 1975. Some aspects of the ocean-continent transition at the continental margin of eastern North America. In: Offshore Geology of Eastern Canada: Volume 2 - Regional Geology, ed., W.J.M. Van der Linden and J.A. Wade. Geological Survey of Canada Paper 74-30(2): 189-197. (BIO Contribution No. 558)

Geophysical studies of the continental margin off Nova Scotia suggest that the ocean-continent transition is less than 20 km wide. The data imply that the magnetic slope anomaly is caused by an 'edge effect' from oceanic to continental crust.

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Keen, C.E., Keen, M.J., Ross, D.I., Lack, M. 1974. Baffin Bay: a small ocean basin formed by sea floor spreading. In: Selected Papers from East

Coast Offshore Symposium Baffin Bay to the Bahamas (1973 : Atlantic City), ed., H.H. Emmerich. American Association of Petroleum Geologists Bulletin 58(6/part 2): 1089-1108. (BIO Contribution No. 433)

This paper is a review of geophysical and geological observations made in Baffin Bay, in which we see that it is reasonable to ascribe the origin of the bay to sea floor spreading.

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Keen, C.E., Klitgord, K., Buffler, R. 1982. Contemporary passive margins of North America [abstract]. Geological Society of America, Abstracts with Programs 14(7): 526.

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Keen, C.E., Lewis, T. 1982. Measured radiogenic heat production in sediments from continental margin of eastern North America: implications for petroleum generation. American Association of Petroleum Geologists Bulletin 66(9): 1402-1407.

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Keen, C.E., Loncarevic, B.D. 1966. Crustal structure on the eastern seaboard of Canada: Studies on the continental margin. Canadian Journal of Earth Sciences 3(1): 65-76. (BIO Contribution No. 45)

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Keen, C.E., Peirce, J.W. 1982. The geophysical implications of minimal Tertiary motion along Nares Strait. In: Nares Strait and the Drift of Greenland; A Conflict in Plate Tectonics, ed., P.R. Dawes and J.W. Kerr. Meddelelser om Gronland; Geoscience 8: 327-337.

The consequences of minimal motion along Nares Strait for the formation of Baffin Bay are described. Various models for the formation of that region are evaluated with respect to their predictions of crustal thickness and basin subsidence. Models other than sea floor spreading for the deep central region of the bay fail to satisfy the observational data or require as much offset in the Nares Strait region as convential plate tectonics.

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Keen, C.E., Piper, D.J.W., Keen, M.J. 1983. Canada - its role in international marine geoscience. In: The Geosciences in Canada, 1980; Part 1. Marine Geoscience in Canada, a Status Report, Prepared and ed. by the Marine Geoscience Committee, Canadian Geoscience Council. Geological Survey of Canada Paper 81-6(pt.1): 53-55.

761
Keen, C.E., Reid, I., Ewing, J. 1983. Continuity of oceanic crust across a rifted continental margin and the role of partial melting in the rifting process. In: International Union of Geodesy and Geophysics

General Assembly (18th : 1983 : Hamburg, Germany), Inter-Union Commission on the Lithosphere, Programme and Abstracts. Hamburg: The Conference. P.60.

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Keen, C.E., Royden, L. 1979. Calculation of paleotemperatures in sedimentary basins at passive continental margins: implications for petroleum generation [abstract]. *Eos; Transactions, American Geophysical Union* 60(42): 751.

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Keen, C.E., Royden, L. 1980. Thermal and tectonic reconstruction of the eastern Canadian continental margin determined from subsidence history [abstract]. *Geological Society of America, Abstracts with Programs* 12(2): 44.

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Keen, C.E., Whitmarsh, R.B. 1983. Seismic structure of the sub-crustal lithosphere in the western North Atlantic: results from Ladle [abstract]. *Geological Association of Canada/Mineralogical Association of Canada/Canadian Geophysical Union, Program with Abstracts* 8: A37.

765
Keen, M.J. 1960. Magnetization of sediment from the eastern Atlantic Ocean. *Nature* 187(4733): 220-222.

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Keen, M.J. 1962. Ocean floor, structure of. In: *Encyclopaedic Dictionary of Physics*, ed., J.Thewlis. New York: Pergamon. V.5: 185-187.

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Keen, M.J. 1963. Magnetic anomalies over the Mid-Atlantic Ridge. *Nature* 197(4870): 888-890.

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Keen, M.J. 1963. The magnetization of sediment cores from the eastern basin of the North Atlantic Ocean. *Deep Sea Research* 10(4): 607-622.

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Keen, M.J. 1968. *An introduction to marine geology*. London: Pergamon. 218p.

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Keen, M.J. 1969. Continental margin of eastern Canada - a summary. In: *North Atlantic - Geology and Continental Drift: A Symposium*, ed., M. Kay. *American Association of Petroleum Geologists Memoir* 12: 88-89.

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Keen, M.J. 1969. Possible edge effect to explain magnetic anomalies off the Eastern Seaboard of the U.S. Nature 222(5188): 72-74.

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Keen, M.J. 1970. A possible diapir in the Laurentian Channel. Canadian Journal of Earth Sciences 7(6): 1561-1564.

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Keen, M.J. 1970. Fracture zones on the Mid Atlantic Ridge between 43 and 44°N. Canadian Journal of Earth Sciences 7(5): 1352-1355.

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Keen, M.J. 1972. The deep structure of the Appalachian province. In: Variations in Tectonic Styles in Canada, ed., R.A. Price and R.J.W. Douglas. Geological Association of Canada Special Paper 11: 243-248.

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Keen, M.J. 1974. The continental margin of eastern North America, Florida to Newfoundland. In: The Ocean Basins and Margins; Vol.2, The North Atlantic, ed., A.E.M. Nairn and F.G. Stehli. New York: Plenum Press. P.41-78.

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Keen, M.J. 1975. The ocean crust. Geoscience Canada 2(1): 36-43.

777
Keen, M.J. 1979. Earth science departments in the eighties: Prepare for the worst: You may be surprised. Geoscience Canada 6(4): 181-184.

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Keen, M.J. 1983. International phase of ocean drilling: Canadian participation. In: The Geosciences in Canada, 1980; Part 1. Marine Geoscience in Canada, a Status Report, prepared and ed. by the Marine Geoscience Committee, Canadian Geoscience Council. Geological Survey of Canada Paper 81-6(pt.1): 55-58.

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Keen, M.J. 1983. Ocean drilling program: producing geological map of the seabed. Northern Miner 69(41): B1-B2.

The ocean drilling program begins in the fall of 1984. Canada has signed an M.O.U. with the National Science Foundation of the USA, and must now decide whether or not to join as a full member, alone, or in concert with a group of other nations.

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Keen, M.J. 1983. Practical problems and issues and the earth sciences offshore. Geological Survey of Canada Paper 83-8: 1.

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Keen, M.J. 1983. The federal environmental assessment review process. In: *The Geosciences in Canada, 1980; Part 1. Marine Geoscience in Canada, a Status Report*, prepared and ed. by the Marine Geoscience Committee, Canadian Geoscience Council. *Geological Survey of Canada Paper* 81-6(pt.1): 48-50.

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Keen, M.J. 1984. Canada and the ocean drilling program. *Geoscience Canada* 11(2): 80-82.

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King, L.H., MacLean, B. 1976. Geology of the Scotian shelf. Geological Survey of Canada Paper 74-31. 31p. (Marine Sciences Paper 7) (BIO Contribution No. 563)

This report accompanies chart 812H, geology of the Scotian shelf and adjacent areas. It discusses the rocks which occur at the sub-Pleistocene unconformity on the continental shelf between the Bay of Fundy and southwestern Newfoundland. Rocks of the Appalachian province extend seaward where they become overlain by Mesozoic and Cenozoic strata which thicken toward the continental margin.

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Describes the results of the deep sea drilling project at the continental margin between the Ivory Coast and Spain (DSDP Leg 41).

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The three major objectives at Site 366 were: to obtain a good stratigraphic record for Late Cretaceous and Tertiary; to decipher the subsidence history of the rise; and to determine the nature of the basement. The nearly complete Cenozoic section allowed detailed micropaleontologic zonation of the section and data on the mode of character of deposition and diagenetic alteration of deep sea deposits. The cyclic character of deposition represented by alteration of terrigenous and biogenic components has been related to variations in climate.

828
Lancelot, Y., Seibold, E., Cepek, P., Dean, W.E., Eremeev, V., Gardner, J.V., Jansa, L.F., Johnson, D., Krasheninnikov, V.A., Pflaumann, U., Rankin, J.G., Trabant, P., Bukry, D. 1978. Site 367: Cape Verde basin. In: Initial Reports of the Deep Sea Drilling Project, Y. Lancelot, E. Seibold et al. Washington: U.S. Government Printing Office. V.41: 163-232.

Drilling in the Cape Verde basin was inside the quiet magnetic zone boundary. Here, the oldest sediments from the eastern North Atlantic were recovered. They are represented by rocks similar to the Rosso et Aptici facies of the Mediterranean. The rocks indicate that the southern North Atlantic was more than 1000m deep in the early Oxfordian and an unrestricted connection existed between the Mediterranean and the North Atlantic basin.

829
Lancelot, Y., Seibold, E., Cepek, P., Dean, W.E., Eremeev, V., Gardner, J.V., Jansa, L.F., Johnson, D., Krasheninnikov, V.A., Pflaumann, U., Rankin, J.G., Trabant, P., Bukry, D. 1978. Site 368: Cape Verde rise. In: Initial Reports of the Deep Sea Drilling Project, Y. Lancelot, E. Seibold, et al. Washington: U.S. Government Printing Office. V.41: 233-326.

The drilling data strongly suggest that the Cape Verde rise is a result of a broad uplift probably related to and contemporaneous with the early Neogene volcanic activity which built the Cape Verde Islands. The seismic reflectors below the rise indicate the occurrence of a series of upper Cretaceous to Miocene turbidites and diabase sills.

830
Lancelot, Y., Seibold, E., Cepek, P., Dean, W.E., Eremeev, V., Gardner, J.V., Jansa, L.F., Johnson, D., Krasheninnikov, V.A., Pflaumann, U., Rankin, J.G., Trabant, P., Bukry, D. 1978. Site 369: Continental Slope off Cape Bojador, Spanish Sahara. In: Initial Reports of the Deep Sea Drilling Project, Y. Lancelot, E. Seibold, et al. Washington: U.S. Government Printing Office. V.41: 327-420.

Site 369 was the first DSDP site to substantially penetrate a continental slope section. The data resulted in new concepts to explain hydrocarbon potential of such regions. In areas without the strong influence of deltaic deposition, the pelagic sediments are the major sedimentary component and potential reservoir rocks are lacking.

831
Lancelot, Y., Seibold, E., Cepek, P., Dean, W.E., Eremeev, V., Gardner, J.V., Jansa, L.F., Johnson, D., Krasheninnikov, V.A., Pflaumann, U., Rankin, J.G., Trabant, P., Bukry, D. 1978. Site 370: Deep basin off Morocco. In: Initial Reports of the Deep Sea Drilling Project, Y. Lancelot, E. Seibold, et al. Washington: U.S. Government Printing Office. V.41: 421-491.

Even though drilling at this site continued smoothly, basement was not encountered because of the time limitation. Unlike other sites along the northwestern African margin, deep sea fan deposits were encountered. The coarse fraction is represented by turbidite beds of average thickness less than 15cm. The turbidites are well cemented by sparry calcite. The site which is seaward of the lower Cretaceous delta provides the first information about the reservoir potential of the lower rise.

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Lefort, J.P., Haworth, R.T. 1977. L'Arc Ibéro-Armoricain: Une structure précambrienne de la plateforme avalonienne [abstract]. In: Réunion Annuelle des Sciences de la Terre (5e : 1977 : Rennes, France). Paris: La Conférence. P.311.

The regional Precambrian basement trends of the Avalon Platform and Spain appear to correlate on proposed reconstructions of the North Atlantic.

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Lefort, J.P., Haworth, R.T. 1978. Geophysical study of basement fractures on the western European and eastern Canadian shelves: Transatlantic correlations, and late Hercynian movements. Canadian Journal of Earth Sciences 15(3): 397-404. (BIO Contribution No. 689)

Geophysical data indicate a transatlantic correlation between major late Paleozoic fractures in France, Iberia and the eastern Canadian continental margin.

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Lefort, J.P., Haworth, R.T. 1979. The age and origin of the deepest correlative structures recognized off Canada and Europe. In: Crustal Properties Across Passive Margins, ed., C.E. Keen. Tectonophysics 59(1-4): 139-150. (Inter-Union Commission on Geodynamics Scientific Report 51); also published in: Crustal Properties Across Passive

Margins: Selected papers from the Symposium (1978: Halifax, N.S.), ed., C.E. Keen. Amsterdam: Elsevier, p.139-150. (Developments in Geotectonics 15)

Detailed geological/geophysical correlation in and between Avalon zone in Canada and Iberian-Franco Precambrian.

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Lentin, J.K., Williams, G.L. 1973. Fossil dinoflagellates: index to genera and species. Geological Survey of Canada Paper 73-42. 176p.

Alphabetical listing (with author, page, and plate number) of 292 genera, 1328 species, and 3 varietates. The original stratigraphic occurrence is given for each species.

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Lentin, J.K., Williams, G.L. 1975. A monograph of fossil peridinioid dinoflagellate cysts. Bedford Institute of Oceanography Report Series BI-R-75-16. 237p.

The peridiniaceae are one of the two most important groups of fossil dinoflagellates. In this paper each published species of the group is illustrated and placed into one of 51 genera which are either emended, redescribed, or new. A new format for the generic diagnoses, which facilitates the understanding of the morphologic features, is utilized.

837
Lentin, J.K., Williams, G.L. 1975. Fossil dinoflagellates: index to genera and species. Supplement 1. Canadian Journal of Botany 53(19): 2147-2157. (BIO Contribution No. 546)

Describes a new species of foraminifera(?) Useful for recognition of back reef facies in oil exploration of Devonian reefs.

838
Lentin, J.K., Williams, G.L. 1977. Fossil dinoflagellates: index to genera and species, 1977 edition. Bedford Institute of Oceanography Report Series BI-R-77-8. 209p.

The index is an alphabetic listing of fossil dinocyst taxa at and below the generic rank, published prior to April 1977. It includes 342 genera, 1700 species, and 136 subspecies. Also listed are 48 generic names no longer considered valid. Fifty-eight new combinations are proposed, as well as two new names for junior homonyms, and 14 changes of rank. New combinations are cross-referenced to the basionym and other combinations. Includes bibliography.

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Lentin, J.K., Williams, G.L. 1977. Taxonomic note: fossil dinoflagellate genus *Isabelidinium* nom. nov. In: *American Association of Stratigraphic Palynologists, Proceedings of the Annual Meeting (8th : 1975 : Houston)*. *Palynology* 1: 167-168.

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Lentin, J.K., Williams, G.L. 1978. Alphabetical listing of fossil dinocyst species. *Bedford Institute of Oceanography Report Series* BI-R-78-4. 44p.

An alphabetical listing of fossil dinocyst species so that their generic assignments can be determined.

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Lentin, J.K., Williams, G.L. 1980. Dinoflagellate provincialism with emphasis on Campanian peridiniaceans. *American Association of Stratigraphic Palynologists Contribution Series* 7. 46p. (BIO Contribution No. 974)

Three diagnostic peridiniacean assemblages, each with its own characteristic species, seem to reflect regional differentiation rather than local paleoecological control in Campanian sediments. These assemblages have been respectively named the Malloy Suite, the McIntyre Suite, and the Williams Suite. The Malloy Suite is restricted to tropical to subtropical paleolatitudes, the Williams Suite is a warm temperate assemblage, while the McIntyre Suite is interpreted as a boreal assemblage.

842
Lentin, J.K., Williams, G.L. 1981. Fossil dinoflagellates: index to genera and species, 1981 edition. *Bedford Institute of Oceanography Report Series* BI-R-81-12. 345p.

An alphabetical listing of all validly published dinoflagellate genera and species together with author, citation and age.

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Levy, E.M., MacLean, B. 1981. Natural hydrocarbon seepage at Scott Inlet and Buchan Gulf, Baffin Island shelf: 1980 update. *Geological Survey of Canada Paper* 81-1A: 401-403.

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Lewis, A.G., Syvitski, J.P.M. 1983. The interaction of plankton and suspended sediment in fjords. In: *Sedimentology of Fjords*, ed., J.P.M. Syvitski and J.M. Skei. *Sedimentary Geology* 36(2/4): 81-92.

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Lewis, C.F.M. 1968. Postglacial uplift studies north of Lake Huron. *Geological Survey of Canada Paper* 68-1A: 174-176.

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Lewis, C.F.M. 1969. Late Quaternary history of lake levels in the Huron and Erie basins. In: *Conference on Great Lakes Research (12th : 1969 : Ann Arbor, MI), proceedings*. Ann Arbor, MI: International Association for Great Lakes Research. P.250-270.

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Lewis, C.F.M. 1969. Quaternary geology of the great lakes. *Geological Survey of Canada Paper* 69-1A: 63-64.

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Lewis, C.F.M. 1969. Sedimentology of Lake Erie. In: *Report to the International Joint Commission on the Pollution of Lake Erie, Lake Ontario and the International Section of the St. Lawrence River*; V.2. *Lake Erie*. [s.l.]: International Lake Erie Pollution Board & International Lake Ontario-St. Lawrence River Pollution Board. P.52-65.

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Lewis, C.F.M. 1969. Sedimentology of Lake Ontario. In: *Report to the International Joint Commission on the Pollution of Lake Erie, Lake Ontario and the International Section of the St. Lawrence River*; V.3. *Lake Ontario and the International Section of the St. Lawrence River*. [s.l.]: International Lake Erie Pollution Board & Internatonal Lake Ontario-St. Lawrence River Pollution Board. P.48-61.

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Lewis, C.F.M. 1970. Recent uplift of Manitoulin Island, Ontario. *Canadian Journal of Earth Sciences* 7(3): 665-675.

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Lewis, C.F.M. 1971. Submersible trials and Lake Ontario studies. Geological Survey of Canada Paper 71-1A: 170-172.

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Lewis, C.F.M. 1977. Scouring of the Beaufort shelf by sea ice [abstract]. Geological Association of Canada/Mineralogical Association of Canada/Society of Economic Geologists/Canadian Geophysical Union, Program with Abstracts 2: 32.

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Lewis, C.F.M. 1978. Drift ice scratches the seafloor. Geos 1978(summer): 18-20.

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Lewis, C.F.M. 1978. The frequency and magnitude of drift-ice groundings from ice-scour tracks in the Canadian Beaufort Sea. In: POAC '77; International Conference on Port and Ocean Engineering under Arctic Conditions (4th : 1977 : Memorial University of Newfoundland, St. John's), Proceedings, ed., D.B. Muggeridge. St. John's, Nfld: Ocean Engineering Information Centre, Memorial University of Newfoundland. V.1: 568-579.

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Lewis, C.F.M. 1981? Coastal research supports shore management concerns [poster]. In: Proceedings of shore management symposium (1978 : Victoria, B.C.). Victoria, B.C.: Canadian Council of Resource and Environment Ministers. P.435-436.

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Lewis, C.F.M., Anderson, T.W. 1984. Early Holocene lake levels in the Huron Basin: Comparative uplift histories of basins and sills in a rebounding glacial marginal depression [abstract]. Geological Association of Canada/Mineralogical Association of Canada, Program with Abstracts 9: 84.

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Lewis, C.F.M., Anderson, T.W., Berti, A.A. 1966. Geological and palynological studies of early Lake Erie deposits. In: Conference on great lakes research (9th : 1966 : Chicago, Il), proceedings. Ann Arbor, MI: University of Michigan Institute of Science and Technology. P.176-191. (Great Lakes Research Division, Publication 15)

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Lewis, C.F.M., Barrie, J.V. 1981. Ice scour studies on the Labrador shelf [abstract]. In: Workshop on research in the Labrador coastal and

offshore region (1980 : Goose Bay, Labrador), proceedings. St. John's: Memorial University. P.264-265.

Summarizes three types of ongoing studies designed to clarify the nature of the ice scouring process - regional distribution of ice scour features, site investigations and time series mapping, modern iceberg grounding dynamics.

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Lewis, C.F.M., Blasco, S.M., Bornhold, B.D., Hunter, J.A.M., Judge, A.S., Kerr, J.W., McLaren, P., Pelletier, B.R. 1977. Marine geological and geophysical activities in Lancaster Sound and adjacent fiords. Geological Survey of Canada Paper 77-1A: 495-506.

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Lewis, C.F.M., Blasco, S.M., Falconer, R.K.H., Martin, G. 1977. Reconnaissance of iceberg scour on the shelves of Labrador Sea and Baffin Bay [abstract]. Geological Association of Canada/Mineralogical Association of Canada/Society of Economic Geologists/Canadian Geophysical Union, Program with Abstracts 2: 32.

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Lewis, C.F.M., Blasco, S.M., McLaren, P., Pelletier, B.R. 1976. Ice scour on the Canadian Beaufort Sea continental shelf [abstract]. Geological Association of Canada, Program with Abstracts 1: 83.

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Lewis, C.F.M., Blasco, S.M., Pelletier, B.R., Sparkes, R. 1982. Drift ice scouring on the Canadian Beaufort shelf; relations among morphology, sediments and environment [abstract]. In: International Congress on Sedimentology (11th : 1982 : McMaster University, Hamilton, Ont.), Abstracts of Papers. Hamilton: McMaster University, Department of Geology. P.92.

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Lewis, C.F.M., Horsman, J.R., Ross, D.I. 1974. Geological, geophysical and

hydrographic studies in Lancaster Sound and Maxwell Bay, district of Franklin. Geological Survey of Canada Paper 74-1A: 251-252.

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Lewis, C.F.M., Josenhans, H.W., Fader, G.B., MacLean, B., d'Apollonia, S. 1982. The distribution and shape variability of iceberg scour marks on eastern Canadian continental shelves [abstract]. In: Joint Oceanographic Assembly (1982 : Halifax, N.S.), poster abstracts. Halifax: The Conference. V.2: 40.

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The coastal environment of the southern Gulf of St. Lawrence is discussed within the context of a progressive subdivision of coastal zone units. The southern gulf is divided into eleven units. One of these units, the northeastern coast of New Brunswick, is defined and the sediment transport systems within this segment are presented.

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Clastic ratios, moment measures and relative entropy were determined for 467 bottom sediments and applied to an interpretation of hydrodynamic vigour in a sedimentary environment in order to explain the transverse and sub-transverse distribution of sediments across the Bay of Fundy.

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An account of environmental marine geology as practised at the Bedford Institute by its former and present staff is given, as well as the historical account of its development.

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Pelletier, B.R., Vilks, G. 1976. [Book review of *Marine Geology and*

Oceanography of the Arctic Seas ed., Y. Herman]. Geoscience Canada 3(1): 61.

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Report on a seismic profiler survey (about 2000 km) completed as part of the Hudson Bay cruise of 1965. These data, combined with bathymetric and sampling data, were the basis for mapping the limit of Paleozoic strata in Hudson Bay, and observed dips along the radial lines of coverage defined the basinal structure of these rocks.

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Pemberton, G.S., Risk, M.J., Buckley, D.E. 1976. Supershrimp: Deep bioturbation in the Strait of Canso, Nova Scotia. Science 192(4241): 790-791. (BIO Contribution No. 583)

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Piper, D.J.W. 1970. Eolian sediment in the basal new red sandstone of Arran. Scottish Journal of Geology 6(3): 295-308.

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Piper, D.J.W. 1970. Transport and deposition of Holocene sediment on La Jolla deep sea fan, California. Marine Geology 8(3/4): 211-227.

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Playford, G., Barss, M.S. 1963. Upper Mississippian microflora from Axel Heiberg Island, district of Franklin. Geological Survey of Canada Paper 62-36. 5p.

First paleontological evidence for existence of Mississippian strata in the Canadian Arctic: specific composition of the microflora is documented and the affiliation with spore florules known from other regions is indicated.

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Praeg, D.B. 1982. Seafloor relief - Baffin Island shelf. Geological Survey of Canada Open File 862. 5 p., 4 charts.

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Praeg, D.B., MacLean, B. 1984. Quaternary sediments of southeast Baffin shelf [abstract]. In: Atlantic Geoscience Society Colloquium on Current Research in the Atlantic Provinces (1984 : [Amherst, N.S.]),Abstracts. [s.l.]: The Colloquium. P.30-31. Also published in Maritime Sediments and Atlantic Geology 20(2): 90-91.

Four main sediment units have been delineated and informally named: Baffin Shelf Drift, Cumberland Silt, Kaxodluim Silt and Clay, Lady Franklin Sound and Gravel. Moraines and multiple tills indicated grounded glacial ice extended onto continental shelf during the Pleistocene. Repeated advances and retreats occur in some localities. Present seabed sediment surface reflects modification by current winnowing and iceberg scouring.

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Praeg, D.B., MacLean, B. 1984. Surficial sediment distribution on southeast Baffin shelf [abstract]. In: Annual Arctic Workshop (13th : 1984 : Institute of Arctic and Alpine Research, Boulder, Co). Boulder, Co: The Workshop. P.26-27.

Surficial sediments of southeast Baffin shelf have been delineated on basis of acoustic profiles and samples. Four main units recognized are: glacial drift, proglacial silt (ice proximal ice distal) late Wisconsin-Holocene silt and clay, sand and gravel. Modification by iceberg scouring to a depth of several metres has occurred in many areas and the sediment surface reflects winnowing by bottom currents.

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Prakash, A., Jensen, A., Rashid, M.A. 1975. Humic substances and aquatic productivity. In: Humic Substances, their Structure and Function in the Biosphere, ed., D. Povoledo and H.L. Golterman. Wageningen: Centre for Agricultural Publishing and Documentation. P.259-268.

The paper elucidates the role of humic acid in chelation of metals, solubility of insoluble salts, delayed precipitation of nutritionally important anions and cations and their impact on enrichment of natural waters leading to increased aquatic production.

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The humic compounds extracted from decomposed marine algae and from mangrove leachates showed stimulatory effect on the growth of diatoms.

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Procter, R.M., Taylor, G.C., Wade, J.A. 1984. Oil and natural gas resources of Canada 1983. Geological Survey of Canada Paper 83-31. 59p. Also issued as Geological Survey of Canada Open File Report 966.

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Prothero, W.A., Jr., Reid, I. 1982. Micro-earthquakes on the East Pacific Rise at 21°N and the Rivera fracture zone. Journal of Geophysical Research 87(B10): 8509-8518.

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Prothero, W.A., Reid, I., Reichle, M.S., Brune, J.N. 1976. Ocean bottom seismic measurements on the east Pacific rise and Rivera fracture zone. Nature 262(5564): 121-124.

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Purcell, L.P., Rashid, M.A., Hardy, I.A. 1978. Hydrocarbon geochemistry of the Scotian basin. In: Proceedings, Offshore Technology Conference (10th : 1978 : Houston). [s.l.]: The Conference. V.1: 87-95. (BIO Contribution No. 806)

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Purcell, L.P., Rashid, M.A., Hardy, I.A. 1979. Geochemical characteristics of sedimentary rocks in the Scotian basin. American Association of Petroleum Geologists Bulletin 63(1): 87-105. (BIO Contribution No. 839)

A detailed documentation of the petroleum source rock assessment for the Scotian basin, based on geochemical analyses of exploration wells. The results indicate that the source rock potential for gas in the section thus far penetrated is only poor to fair, while the potential for oil generation is poor. Deeper prospects in the Scotian basin could have good potential for oil, as well as the more marine Cretaceous rocks to the southeast, toward the shelf edge and upper slope.

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Purcell, L.P., Umpleby, D.C., Wade, J.A. 1980. Regional geology and hydrocarbon occurrences off the east coast of Canada. In: Facts and Principles of World Petroleum Occurrence, ed., A.D. Miall. Calgary: Canadian Society of Petroleum Geologists. P.551-566. (Canadian Society of Petroleum Geologists Memoir 6) (BIO Contribution No. 988)

Reviews the geological setting of the major Mesozoic-Cenozoic sedimentary basins of eastern Canada, and discusses the hydrocarbon occurrence parameters as determined from geochemistry and source rock studies.

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Purdy, G.M., Schouten, H., Crowe, J., Barrett, D.L., Falconer, R.K.H., Udintsev, G.B., Marova, N.A., Litvin, V.M., Valyashko, G.M., Markushevich, V.M., Zdordvenin, V.V. 1978. IPOD Site at-6: a site survey. In: Initial Reports of the Deep Sea Drilling Project, ed., J.D. Shamback. Washington: U.S. Government Printing Office. V.45: 39-48.

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Quinlan, G., Beaumont, C., Courtney, R.C. 1983. Lithospheric rheology and the flexural development of Paleozoic interbasinal arches [abstract]. Geological Association of Canada/Mineralogical Association of Canada/ Canadian Geophysical Union, program with abstracts 8: A56.

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[Rancon, D., Kuijpers, A., Avrogradro, A., Cranston, R., Francis, T.J.G., Heath, G.R.] 1981. Sediment and rock task group. In: Proceedings of the Annual NEA-Seabed Working Group Meeting (6th : 1981 : Paris), ed., D.R. Anderson. Albuquerque, NM: published by Sandia National Laboratories on behalf of OECD/Nuclear Energy Agency. P.169-180. (Available from NTIS, SAND 81-0427)

1131
Rashid, M.A. 1974. Absorption of metals on sedimentary and peat humic acids. Chemical Geology 13: 115-123. (BIO Contribution No. 412)

Humic acids were found effective in absorption of metal through chelation and cation exchange reactions. This phenomenon could open a new avenue for the recovery of trace metals from sea water by use of peat-humic acid as absorbent.

1132
Rashid, M.A. 1974. Degradation of bunker C oil under different coastal environments of Chedabucto Bay, Nova Scotia. Estuarine and Coastal Marine Science 2: 137-144. (BIO Contribution No. 413)

The coastal environmental conditions appear to have marked influence on the degradation of oil. A considerable reduction in hydrocarbon content and a parallel increase in non-hydrocarbons was noticed in oil being degraded in high energy coasts.

1133
Rashid, M.A. 1974. Humic compounds of sedimentary environment: their chemical nature and geochemical significance. In: Offshore Geology of Eastern Canada: Volume 1 - Concepts and Applications of Environmental Marine Geology, ed., B.R. Pelletier. Geological Survey of Canada Paper 74-30(1): 123-132. (BIO Contribution No. 447)

The chemical nature of humic compounds isolated from marine sediments is discussed. The geochemical significance of these compounds in solubility migration and accumulation of trace metals is elucidated.

1134
Rashid, M.A. 1975. The importance of organic compounds in geological oceanography. Bedford Institute of Oceanography Biennial Review 1973-74: 231-239.

The significance of marine organic compounds in relation to solubility of metals, geotechnical properties of sediments depositional environment, oil and formation and ecology of coastal waters is reviewed and discussed.

1135
Rashid, M.A. 1978. The influence of a salt dome on the diagenesis of organic matter in the Jeanne d'Arc subbasin of the northeast Grand Banks of Newfoundland. Organic Geochemistry 1(2): 67-77. (BIO Contribution No. 763)

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Rashid, M.A. 1979. Pristane-phytane ratios in relation to source and diagenesis of ancient sediments from the Labrador shelf. Chemical Geology 25(1/2): 109-122. (BIO Contribution No. 842)

The pristane/phytane ratios increase with increasing terrestrial contribution and geothermal alteration of organic matter.

1137
Rashid, M.A., Brown, J.D. 1975. Influence of marine organic compounds on the engineering properties of a remoulded sediment. Engineering Geology

9(2): 141-154. (BIO Contribution No. 481)

Variations in the concentration of organic content significantly affected the shear strength, compressibility and rheological or time-dependent stress-strain behaviour of sediments.

1138
Rashid, M.A., Buckley, D.E., Robertson, K.R. 1972. Interactions of a marine humic acid with clay minerals and a natural sediment. Geoderma 8: 11-27. (BIO Contribution No. 303)

1139
Rashid, M.A., Leonard, J.D. 1973. Modifications in the solubility and precipitation behavior of various metals as a result of their interaction with sedimentary humic acid. Chemical Geology 11: 89-97. (BIO Contribution No. 355)

The sedimentary humic acid or their hydrolysate consisting of various amino compounds were found effective in enhancing the solubility of metals from their insoluble salts and in retarding the precipitation of soluble metals as sulfides, hydroxides and carbonates. Thus they play an important role in solubility, mobility and concentration of metals.

1140
Rashid, M.A., McAlary, J.D. 1977. Early maturation of organic matter and genesis of hydrocarbons as a result of heat from a shallow piercement salt dome. Journal of Geochemical Exploration 8: 549-569. (BIO Contribution No. 665)

The subsurface geology of Primrose prospect is characterized by presence of Jurassic salt that has pierced the Early Cretaceous sediments and uplifted Late Cretaceous and Early Tertiary beds to provide localized structural closure, shale compaction, and anomalously high heat gradients in the younger sediments overlying the salt mass.

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Rashid, M.A., Purcell, L.P., Hardy, I.A. 1980. Source rock potential for oil and gas of the east Newfoundland and Labrador shelf areas. In: Facts and Principles of World Petroleum Occurrence, ed., A.D. Miall. Calgary: Canadian Society of Petroleum Geologists. P.589-608. (Canadian Society of Petroleum Geologists Memoir 6)

1142
Rashid, M.A., Reinson, G.E. 1979. Organic matter in surficial sediments of the Miramichi estuary, New Brunswick, Canada. Journal of Estuarine and Coastal Marine Science 8(1): 23-36. (BIO Contribution No. 729)

The organic matter found in surfical sediments of Miramichi estuary is derived predominantly from a terrestrial source and shows a high degree of correlation with grain size distribution.

1143
Rashid, M.A., Vilks, G. 1977. Environmental controls of methane production in Holocene basins in eastern Canada. Organic Geochemistry 1(1): 53-59. (BIO Contribution No. 669)

Fermentative degradation of organic matter under reducing conditions generates high concentration (22,000 ppm) of methane in Holocene basins.

1144
Rashid, M.A., Vilks, G. 1977. Geochemical environment of methane-producing subarctic sedimentary basins of eastern Canada. In: Proceedings of the International Meeting on Organic Geochemistry (7th : 1975 : Madrid), ed., R. Campos and J. Goni. Madrid: Empresa Nacional Adaro de Investigaciones Mineras. P.341-356. (Advances in Organic Geochemistry 1975)

A study of the geochemical environment of sedimentary basins suggests that methane is formed in recent sediments by anaerobic fermentative degradation of organic matter.

1145
Rashid, M.A., Vilks, G., Leonard, J.D. 1975. Geological environment of a methane-rich Recent sedimentary basin in the Gulf of St. Lawrence. Chemical Geology 15: 83-96. (BIO Contribution No. 475)

Environment favourable for the production of methane in Recent sediments is discussed by comparing the organic geochemical and foraminiferal characteristics of two sediment cores from Baie de Chaleurs.

1146
Reichle, M., Reid, I. 1977. Detailed study of earthquake swarms from the Gulf of California. Seismological Society of America Bulletin 67(1): 159-171.

1147
Reid, I., Falconer, R.K.H. 1982. A seismicity study in northern Baffin Bay. Canadian Journal of Earth Sciences 19(7): 1518-1531.

During September - October 1978, seismicity was confined to either a zone of shallow (10km) earthquakes near and parallel to the Baffin Island coast, particularly near Cape Jameson, or within a diffuse zone of deeper events (50-60km) in Baffin Bay.

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Reid, I., Jackson, H.R. 1981. Oceanic spreading rate and crustal thickness. Marine Geophysical Researches 5(2): 165-172.

Thin oceanic crust (2-3km) measured near the Arctic mid-ocean ridge has led to a re-examination of crustal thickness as a function of spreading rate. A positive correlation of slow-spreading producing thin crust was found. This was substantiated by magnetic anomaly amplitude trends and numerically delled.

1149
Reid, I., Keen, C.E., Ewing, J. 1983. Continuity of oceanic crust beneath a rifted continental margin and partial melting in the rifting process. Eos; Transactions, American Geophysical Union 64(45): 757.

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Reid, I., MacDonald, K. 1973. Micro-earthquake study of the Mid-Atlantic Ridge near 37°N, using sonobuoys. Nature 246(5428): 88-90.

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Reid, I., Orcutt, J.A., Prothero, W.A. 1977. Seismic evidence for a narrow zone of partial melting underlying the east Pacific rise at 21°N. Geological Society of America Bulletin 88(5): 678-682.

1152
Reid, I., Prothero, W.A. 1981. An earthquake sequence studied with ocean-bottom seismographs. Geophysical Journal of the Royal Astronomical Society 64(2): 381-391.

1153
Reid, I., Reichle, M., Brune, J., Bradner, H. 1973. Micro-earthquake studies using sonobuoys: preliminary results from the Gulf of California. Geophysical Journal of the Royal Astronomical Society 34: 365-379.

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Reinson, G.E. 1976. Channel and shoal morphology in the entrance to the Miramichi estuary, New Brunswick. Geological Survey of Canada Paper 76-1C: 33-35.

1155
Reinson, G.E. 1976. Surficial sediment distribution in the Miramichi estuary and implications for dredging. Geological Survey of Canada Open File 395. 23p.

1156
Reinson, G.E. 1976. Surficial sediment distribution in the Miramichi estuary, New Brunswick. Geological Survey of Canada Paper 76-1C: 41-44.

1157
Reinson, G.E. 1976. Tidal-inlet control on distribution of sandy sediments, Miramichi estuary, N.B. [abstract]. Maritime Sediments 12(3): 99.

The distribution of sand in Miramichi inner bay is controlled largely by tidal current processes.

1158
Reinson, G.E. 1977. Examination of bedforms in shallow water using side scan sonar, Miramichi estuary, New Brunswick. Geological Survey of Canada Paper 77-1B: 99-105.

Side scan survey in shallow water of the Miramichi estuary proved useful in determining bedform morphology.

1159
Reinson, G.E. 1977. Tidal-current control of submarine morphology at the mouth of the Miramichi estuary, New Brunswick. Canadian Journal of Earth Sciences 14(11): 2524-2532. (BIO Contribution No. 664)

Submarine morphology at the mouth of the Miramichi is controlled primarily by tidal currents and this tidal current flow pattern has been altered significantly by dredging.

1160
Reinson, G.E. 1978. Carbonate-evaporite cycles in the Silurian rocks of Somerset Island, Arctic Canada. Geological Survey of Canada Paper 76-10. 13p.

1161
Reinson, G.E. 1978. Variations in tidal-inlet morphology and stability, eastern New Brunswick [abstract]. Maritime Sediments 14(1): 36.

1162
Reinson, G.E. 1979. Assessment of the Nova Scotia coastline for potential impingement of KURDISTAN oil. Geological Survey of Canada Open File 631. 16p.

This report contains assessments of sectors of the Atlantic Nova Scotia coast, which were prepared for E.P.S. to use during the "KURDISTAN" incident.

1163
Reinson, G.E. 1979. Facies models 14. Barrier Island systems. Geoscience Canada 6(2): 51-68. (BIO Contribution No. 873)

Barrrier Island stratigraphic sequences are reviewed, and three facies models presented for use in interpreting ancient rocks.

1164
Reinson, G.E. 1979. Longitudinal and transverse bedforms on a large tidal delta, Gulf of St. Lawrence, Canada. Marine Geology 31(3/4): 279-296.

Horseshoe shoal at the mouth of the Miramichi is characterized by a large sand-wave field which is cut by a field of current lineations.

1165
Reinson, G.E. 1980. Variations in tidal-inlet morphology and stability, northeast New Brunswick. In: The Coastline of Canada, ed., S.B. McCann. Geological Survey of Canada Paper 80-10: 23-39.

The tidal inlets in northeast New Brunswick display wide variations in stability and morphology, which are related to tidal-prism range, alignment of shoreline and sediment supply.

1166
Reinson, G.E. 1981. Canada's Barrier Islands. Geos 10(1): 6-8.

Barrier Islands of northeast New Brunswick are extremely varied with respect to stability and morphological style.

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Reinson, G.E., Frobel, D. 1980. Effects of dredging activities on shoreline morphology and stability, northeast New Brunswick. In: Canadian Coastal Conference, Proceedings = Comptes-Rendus, Conférence Canadienne sur le Littoral (1980 : Burlington, Ont.). Ottawa: Associate Committee for Research on Shoreline Erosion and Sedimentation, National Research Council. P.394-410.

1168
Reinson, G.E., Frobel, D., Rosen, P.S. 1979. Physical environments of the Groswater Bay-Lake Melville coastal region. In: Symposium on Research in the Labrador Coastal and Offshore Region (1979 : St. John's, Nfld). St. John's: Memorial University. P.167-179.

Physical environments of the Groswater Bay-Lake Melville coastal region are delineated.

1169
Reinson, G.E., Frobel, D., Taylor, R.B., Asprey, K. 1980. Observations on the occurrence of bunker C oil on the Cape Breton shoreline, May 1979. In: Scientific Studies during the "KURDISTAN" Tanker Incident: Proceedings of a Workshop (1979 : Bedford Institue of Oceanography, Dartmouth), ed., J.H. Vandermeulen. Bedford Institute of Oceanography Report Series BI-R-80-3: 120-131.

Bunker C oil occured on the Cape Breton shoreline as a distinct group of physical forms: the occurrence of these forms is related to the mechanical dispersal paths and to shoreline types.

1170
Reinson, G.E., Rosen, P.S. 1979. Depositional sequence in a subarctic sandy beach face, central Labrador [abstract]. *American Association of Petroleum Geologists Bulletin* 63(3): 514.

Break-up and freeze-up events can be preserved in sedimentary record of a subarctic beach.

1171
Reinson, G.E., Rosen, P.S. 1982. Preservation of ice-formed features in a subarctic sandy beach sequence: geologic implications. *Journal of Sedimentary Petrology* 52(2): 463-471.

1172
Reinson, G.E., Vilks, G. 1980. Seabed characteristics and sand dispersal on the bedrock-dominated inner shelf of southern Labrador [abstract]. *American Association of Petroleum Geologists Bulletin* 64(5): 771.

1173
Richardson, J.B., et coll. 1964. Stratigraphic distribution of some Devonian and Lower Carboniferous spores. In: *Compte rendu, Congrès Internationale de Stratigraphie et de Géologie du Carbonifère (5e : 1963 : Paris)*. V.3: 1111-1114.

Contribution to subgroup 13B by M.S. Barss. A composite range chart shows comparison with a number of other areas.

1174
Riding, R., Jansa, L.F. 1974. *Uraloporella korde* in the Devonian of Alberta. *Canadian Journal of Earth Sciences* 11(10): 1414-1426.

Describes a new species of foraminifera(?) useful for recognition of back reef facies in oil exploration of Devonian reefs.

1175
Riding, R., Jansa, L.F. 1976. Devonian occurrence of *Uraloporella* (?Foraminifer) in the Canning basin, Western Australia. *Journal of Paleontology* 50(5): 805-807.

Describes a problematic foraminifer from the Devonian of Australia; This indicates a worldwide distribution of the genus *Uraloporella* during the Devonian and further emphasizes its preference for back reef or shallow carbonate platform environments. The genus was previously described from the Devonian of Canada.

1176
Risk, M., Buckley, D. 1979. Viewpoint on a viewpoint. [Comment on Gordon and Longhurst, the environmental aspects of a tidal power project in the

upper reaches of the Bay of Fundy]. Marine Pollution Bulletin 10(8): 219-222.

The comment points out that the model-transfer method of assessing environmental impact of tidal power development in the Bay of Fundy may not be as successful as predictions based on specific knowledge of the system gained by current research.

1177
Risk, M.J., Venter, R.D., Pemberton, S.G., Buckley, D.E. 1978. Computer simulation and sedimentological implications of burrowing by axius serratus. Canadian Journal of Earth Sciences 15(8): 1370-1374. (BIO Contribution No. 789)

Computer simulation demonstrates that the ratio of sedimentary turnover caused by burrowing shrimp axius serratus is sufficient to obliterate recent geochronolgy and primary sedimentary structures.

1178
Robertson, K.R., Rashid, M.A. 1976. Effect of solutions of humic compounds on concrete. Journal of the American Concrete Institute 73(10): 577-580.

Ca, the most abundant cation in cement-concrete was released in the fresh and salt water systems containing 10 ppm in humic acids at a maximum concentration of 28 and 96 ppm respectively.

1179
Roots, W.D., Srivastava, S.P. 1984. Origin of the marine magnetic quiet zones in the Labrador and Greenland seas. Marine Geophysical Researches 6(4): 395-408.

Increasing obliquity of spreading along ridge axes in the Labrador Sea (after anomaly 25 time) and Greenland Sea correlates with poorer linear magnetic anomalies. Some quiet zones may appear at oblique spreading centres where small source blocks of opposite polarity are juxtaposed by short ridge segments thus precluding resolution of their magnetic signature.

1180
Rosen, P.S. 1977. Letters to the editor, Winthrop Beach Breakwaters. Shore and Beach 45(2): 37.

1181
Rosen, P.S. 1978. Aeolian dynamics of a Barrier Island system [abstract]. Geological Society of America, abstracts with programs 10(2): 83.

1182
Rosen, P.S. 1978. An efficient, low cost, aeolian sampling system. Geological Survey of Canada Paper 78-1A: 531-532.

1183
Rosen, P.S. 1978. Beach processes and sedimentation, by P.D. Komar [Book review]. Journal of Geology 86(1): 155.

Dr. Komar's text provides a well documented treatment of physical processes as they affect beach dynamics.

1184
Rosen, P.S. 1978. Degradation of ice-formed beach deposits. Maritime Sediments 14(2): 63-68.

1185
Rosen, P.S. 1978. Predicting beach erosion as a function of rising water level: a discussion. Journal of Geology 86(6): 763-764.

Dubois model for the prediction of shore erosion assumes dynamic equilibrium in the system yet the data it is based on is of too short a sampling period to define such an equilibrium. The model also ignores the contemporary research in nearshore processes.

1186
Rosen, P.S. (Ed.) 1978. Workshop on coastal research and planning in Labrador. Bedford Institute of Oceanography Report Series BI-R-77-12. 66p.

This report is the proceedings of a workshop held at the Atlantic Geoscience Centre on 27 January, 1978. It is a synthesis of research and planning being carried on in the coastal and nearshore zone of Labrador.

1187
Rosen, P.S. 1979. Sediment transport by intertidal ice. In: Symposium on Research in the Labrador Coastal and Offshore Region (1979 : St. John's, Nfld). St. John's: Memorial University. P.133-147.

1188
Rosen, P.S. 1980. Coastal environments of the Makkovik region, Labrador. In: The Coastline of Canada, ed., S.B. McCann. Geological Survey of Canada Paper 80-10: 267-280.

1189
Ross, D.I. 1973. Free air and simple bouguer gravity maps of Baffin Bay and adjacent continental margins. Geological Survey of Canada Paper 73-37. 11p. (BIO Contribution No. 431)

1190
Ross, D.I. 1976. Seismology and physics of the earth's interior, 3. Atlantic Geoscience Centre - I seismology, II physics of the earth's interior. Canadian Geophysical Bulletin 29: 35.

1191
Ross, D.I. 1976. The Huntec seabed project; a success story in joint government/industry research undertakings. Geos 1976(summer): 8-9.

A summary of the first fifteen months of a joint government/industry research project to develop the technology for acoustic mapping of the surficial sediments on the continental shelf.

1192
Ross, D.I., Falconer, R.K.H. 1976. Geophysical anomalies in the area of Leg 37 drilling [abstract]. Geological Association of Canada Annual Meeting, abstracts 1: 59.

1193
Ross, D.I., Falconer, R.K.H. 1977. Mid-Atlantic Ridge at 37°N: geophysical anomalies in the area of Leg 37 drilling. Canadian Journal of Earth Sciences 14(4/part 2): 664-673. (BIO Contribution No. 649)

1194
Ross, D.I., Henderson, G. 1973. New geophysical data on the continental shelf of central and northern West Greenland. Canadian Journal of Earth Sciences 10(4): 485-497. (BIO Contribution No. 369)

Recent geophysical work on the continental shelf of central and northern West Greenland has enabled the known onshore geology of the West Greenland Basin to be extended into the offshore region and the major graben running the length of the continental shelf in Melville Bugt to be defined in some detail

1195
Ross, D.I., Lewis, C.F.M., Bornhold, B. 1975?. Hydrography in the Arctic - a geoscience opportunity for expanding subsea knowledge. In: Annual Canadian Hydrographic Conference (14th : 1975 : Halifax, N.S.), [Proceedings]. [Ottawa]: Canadian Hydrographic Service. P.109-117.

We believe geomorphological synthesis is an essential step towards national assessment of land use proposals and that hydrographic multiparameter surveys provide an essential base of geoscientific information for such a synthesis. We use a conceptual model for the development of the submarine physiography of Barrow Strait as an example in showing the possible additional knowledge that can be obtained within the framework of the hydrographic program.

1196
Ross, D.I., Shih, K.G., Johnston, B.L., Porteous, D.M. 1973. Geofile - A revised manual on the storage and retrieval of geophysical data. BIO Computer Note Series BI-C-73-03. 171p.

1197
Royden, L., Keen, C.E. 1980. Rifting process and thermal evolution of the

continental margin of eastern Canada determined from subsidence curves. *Earth and Planetary Science Letters* 51(2): 343-361. (BIO Contribution No. 947)

This paper shows that extension during rifting can account for the observed sudsidence off Nova Scotia and Labrador and for erosional unconformities. The extension model was used to compute the paleotemperature history of the sediments.

1198
Ruffman, A.S., Hobson, G.D., Keen, M.J. 1968. A seismic study of the crust and mantle beneath the bay. In: *Science, History and Hudson Bay*, ed., C.S. Beals. Ottawa: Department of Energy, Mines and Resources. V.2: 629-642.

1199
Ruffman, A.S., Keen, M.J. 1967. A time-term analysis of the first arrival data from the seismic experiments in Hudson Bay 1965. *Canadian Journal of Earth Sciences* 4(4): 901-928.

1200
Rullkotter, J., Vuchev, V., Hinz, K., Winterer, E.L., Baumgartner, P.O., Bradshaw, M.J., Channell, J.E.T., Jaffrezo, M., Jansa, L.F., Leckie, R.M., Moore, J.M., Schaftenaar, C., Steiger, T.H., Wiegand, G.E. 1983. Potential deep-sea petroleum source beds related to coastal upwelling. In: *Coastal Upwelling: Its Sediment Record. Part B: Sedimentary Records of Ancient Coastal Upwelling*, ed., J. Thiede and E. Suess. New York: Plenum Press. P.467-483. (Nato Conference Series: 4, Marine Sciences 10b)

1201
Ryall, P.J.C., Fowler, G.A., Manchester, K.S. 1981. An electric rock core drill for deep ocean use. In: *Proceedings, Offshore Technology Conference (13th : 1981 : Houston, Texas)*. Dallas: The Conference. V.4: 123-128.

1202
Rynn, J.M.W., Reid, I.D. 1983. Crustal structure of the western Arafura sea from ocean bottom seismograph data. *Journal of the Geological Society of Australia* 30(1/2): 59-74.

1203
Sanford, B.V., Grant, A.C., Wade, J.A., Hardy, I.A., Williams, G.L., Howie, R.D., Barss, M.S. 1979. Geology of eastern Canada and adjacent areas. *Geological Survey of Canada Map* 1401a: 4 sheets.

1204
Sanford, B.V., Grant, G.M. 1975. Physiography, eastern Canada and adjacent areas. In: *Offshore Geology of Eastern Canada:* Volume 2 - *Regional*

Geology. Geological Survey of Canada Paper 74-30: Map holder 2, map 1399a.

Four map sheets covering eastern Canada, onshore and offshore, at 1:2 million, depicting the physiography and naming the main features.

1205
Sanford, B.V., Howie, R.D. 1956. Oil and gas in eastern Canada. Canadian Oil and Gas Industries 10(10): 67-77.

A report on the stratigraphy, economic geology, exploration and development of oil and gas producing areas in southwestern Ontario and New Brunswick.

1206
Sanford, B.V., Norris, A.W. 1975. Devonian stratigraphy of the Hudson platform. Geological Survey of Canada Memoir 379(1-2). 248p.

Memoir illustrates and describes the distribution, lithological character and age of the rock units in the Hudson platform.

1207
Schafer, C.T. 1973. Distribution of foraminifera near pollution sources in Chaleur Bay. Water, Air, and Soil Pollution 2(2): 219-233. (BIO Contribution No. 400)

Benthonic foraminifera are zoned locally in Chaleur Bay in response to effluent discharge. The elphidium incertum/clavatum group usually dominates the living fauna near sewage outfalls.

1208
Schafer, C.T. 1974. The Mid-Atlantic Ridge near 45°N. XXII Sedimentary deposition and lithogenesis on Mid-Atlantic Ridge mountain tops. Canadian Journal of Earth Sciences 11(8): 1157-1167. (BIO Contribution No. 414)

Bottom photographs collected on several mountain tops along the crest of the Mid-Atlantic Ridge near 45°N indicate rapid changes in bottom current direction and velocities. Absolute dates (c) of coralline limestone, which underlies surficial sediments was initially lithified under interstadial conditions during middle Wisconsin time.

1209
Schafer, C.T. 1976. Distribution of foraminifera in Chaleur Bay, New Brunswick-Quebec. Geological Survey of Canada Paper 76-1C: 19-23.

1210
Schafer, C.T. 1976. In situ environment responses of benthonic foraminifera. Geological Survey of Canada Paper 76-1C: 27-32.

1211
Schafer, C.T. 1977. Distribution and depositional history of sediments in Baie des Chaleurs, Gulf of St. Lawrence. Canadian Journal of Earth Sciences 14(4/part 1): 593-605.

Modern sediment distribution in Chaleur Bay is controlled primarily by an interplay of bathymetric variation and wave climate.

1212
Schafer, C.T. 1977. Relationship of benthonic foraminifera distribution patterns to water mass characteristics in Chaleur Bay, Gulf of St. Lawrence [abstract]. In: International Meiofauna Conference (3rd : 1977 : Hamburg), [abstracts]. Hamburg: The Conference. Pages not numbered.

Foraminiferal species distributions in Chaleur Bay are controlled primarily by water mass characteristics and the basic circulation pattern of the Restigouche estuary.

1213
Schafer, C.T. 1982. Foraminiferal colonization of an offshore dump site for Chaleur Bay, New Brunswick, Canada. Journal of Foraminiferal Research 12(4): 317-326.

1214
Schafer, C.T. 1983. Introduction [to sedimentology of Arctic fjords experiments]. In: Sedimentology of Arctic Fjords Experiment: HU 82-031 Data Report, Volume 1, ed., J.P.M. Syvitski and C.P. Blakeney. Canadian Data Report of Hydrography and Ocean Sciences 12. V.1: 1.1-1.4. Also published in Geological Survey of Canada Open File 960.

A multidisciplinary GSC project that sets out to understand modern processes within end-member Arctic fjord environments and to apply these findings to litho- and biostratigraphic facies that compose Quaternary fjord environments.

1215
Schafer, C.T. 1984. The Newfoundland slope at 49-50°N: Nature and magnitude of contemporary marine geological processes. Geological Survey of Canada Paper 84-1A: 563-566.

1216
Schafer, C.T., Asprey, K.W. 1982. Significance of some geotechnical properties of continental slope and rise sediments off northeast Newfoundland. Canadian Journal of Earth Sciences 19(1): 153-161.

1217
Schafer, C.T., Blakeney, C.P. 1984. Baffin Islands fjords. Sea Frontier 30(2): 94-105.

1218
Schafer, C.T., Clattenburg, D., Cole, F.E., Leblanc, W., Syvitski, J.P.M. 1984. SAFE: 1983 Hudson bottom grab samples. In: Sedimentology of Arctic Fjords Experiment: HU 83-028 data report, volume 2, comp., J.P.M. Syvitski. Canadian Data Report of Hydrography and Ocean Sciences 28: 7.1-7.73. Also published in Geological Survey of Canada Open File 1122.

1219
Schafer, C.T., Cole, F.E. (Frape) 1974. Distributions of benthonic foraminifera: their use in delimiting local nearshore environments. In: Offshore Geology of Eastern Canada: Volume 1 - Concepts and Applications of Environmental Marine Geology, ed., B.R. Pelletier. Geological Survey of Canada Paper 74-30(1): 103-108. (BIO Contribution No. 445)

Certain species of foraminifera along with population indices such as compound diversity are useful in order to map artificial biotopes that have developed in the nearshore zone.

1220
Schafer, C.T., Cole, F.E. 1975. Time-space variations of total foraminiferal species counts in the Restigouche estuary [abstract]. In: Abstracts, Benthonics '75. Halifax: Dalhousie University, etc. P.41-42.

1221
Schafer, C.T., Cole, F.E. 1976. Foraminiferal distribution patterns in the Restigouche estuary. In: International Symposium on Benthonic Foraminifera of Continental Margins (1st : 1975 : Halifax), ed., C.T. Schafer and B.R. Pelletier. Maritime Sediments Special Publication 1: 1-24. (BIO Contribution No. 616)

In establishing biotope boundaries in coastal environments using foraminifera data, changes in the proportion of the more ubiquitous and abundant species should yield about the same degree of geographic resolution as does total species data.

1222
Schafer, C.T., Cole, F.E. 1978. Distribution of foraminifera in Chaleur Bay, Gulf of St. Lawrence. Geological Survey of Canada Paper 77-30. 55p.

The distribution pattern of foraminifera in Chaleur Bay is primarily a function of water mass characteristics and proximity to the mouths of major rivers.

1223
Schafer, C.T., Cole, F.E. 1982. Living benthic foraminifera distributions on the continental slope and rise east of Newfoundland, Canada. Geological Society of America Bulletin 93(3): 207-217.

1224
Schafer, C.T., Cole, F.E. 1984. The Baffin Island fiords: Modern calcareous foraminiferal assemblages. In: *Annual Arctic Workshop (13th : 1984 : Institute of Arctic and Alpine Research, Boulder, Co)*. Boulder, Co: The Workshop. P.60-61.

Calcareous foraminiferal diversity shows no distinctive trend with respect to ice margin environments observed in 10 fjords surveyed in 1982. In the high diversity assemblages *Cibicides lobatulus* and *Cassidulina reniforme* are the dominant species.

1225
Schafer, C.T., Cole, F.E., Carter, L. 1978. Benthic foraminiferal diversity and geological processes on the northeast Newfoundland slope: first results [abstract]. *Geological Society of America, Abstracts with Programs* 10(7): 485.

1226
Schafer, C.T., Cole, F.E., Carter, L. 1981. Bathyal zone benthic foraminiferal genera off northeast Newfoundland. *Journal of Foraminiferal Research* 11(4): 296-316.

1227
Schafer, C.T., Cole, F.E., Carter, L. 1983. Paraecology of bathyal zone arenaceous foraminifera genera and species assemblages off northeast Newfoundland. In: *Proceedings of the Workshop on Arenaceous Foraminifera (1st : 1981 : Amsterdam, The Netherlands)*, ed., J.G. Verdenius, J.E. Van Hinte, and A.R. Fortuin. Trondheim, Norway: Continental Shelf Institute. P.133-145. (Institutt for Kontinentalsokkelundersoke ser, IKU Publication 108)

1228
Schafer, C.T., Cole, F.E., Wagner, F.J.E. 1977. Relationship of foraminifera distribution patterns to sedimentary processes in the Miramichi estuary, New Brunswick. *Geological Survey of Canada Paper* 77-1C: 1-7.

The distribution pattern of ubiquitous foraminifera species in the Miramichi estuary is related to absolute abundance which, in turn, is controlled by environmental factors and passive transport mechanisms within the system.

1229
Schafer, C.T., Godden, C.A., Payzant, P., Fowler, G.A. 1975. A portable underwater videorecorder. In: *Proceedings, Offshore Technology Conference (7th : 1975 : Houston)*. New Jersey: IEEE. V.1: 725-732.

An "off the shelf" portable T.V. recording system has been modified for underwater use in depths up to 100 metres. It can be used by free-swimming divers or in a fixed position (moored) mode for periods of up to 8 days.

1230
Schafer, C.T., Mudie, P.J. 1980. Spatial variability of foraminifera and pollen in two nearshore sediment sites, St. Georges Bay, Nova Scotia. Canadian Journal of Earth Sciences 17(3): 313-324. (BIO Contribution No. 902)

1231
Schafer, C.T., Mudie, P.J., Plasse, D. 1976. Correlation and significance of foraminiferal assemblages from replicate cores, Georges Bay, Nova Scotia [abstract]. Maritime Sediments 12(3): 100.

Quantitative paleoecological data are compared between two undisturbed cores covering about a 300 year time period.

1232
Schafer, C.T., Scott, D. 1976. Multidisciplinary environmental marine geological analysis of a coastal area. Geological Survey of Canada Paper 76-1C: 1-3.

1233
Schafer, C.T., Smith, J.N. 1979. Sedimentation at the head of the Saguenay fjord [abstract]. Geological Association of Canada/Mineralogical Association of Canada, program with abstracts 4: 76.

1234
Schafer, C.T., Smith, J.N. 1980. Paleoceanographic significance of Holocene sediment bioturbation on the continental slope off Newfoundland [abstracts]. Geological Association of Canada Annual Meeting abstracts 5: 79.

1235
Schafer, C.T., Smith, J.N. 1982. 20th century sedimentation events in the upper Saguenay fjord, Quebec [abstract]. In: International Congress on Sedimentology (11th : 1982 : McMaster University, Hamilton, Ont.), abstracts of papers. Hamilton: McMaster University, Department of Geology. P.107.

1236
Schafer, C.T., Smith, J.N. 1983. River discharge, sedimentation and benthic environmental variations in inner Miramichi Bay. Canadian Journal of Earth Sciences 20(3): 388-398.

1237
Schafer, C.T., Smith, J.N., Cole, F.E. 1981. Record of paleoceanographic events in Holocene sediments: Newfoundland continental slope and rise. In: Workshop on Research in the Labrador Coastal and Offshore

Region (1980 : Goose Bay, Labrador), proceedings. St. John's: Memorial University. P.224-243.

1238
Schafer, C.T., Smith, J.N., Loring, D.H. 1980. Recent sedimentation events at the head of Saguenay fjord, Canada. Environmental Geology 3(3): 139-150. (BIO Contribution No. 1013)

Annual sediment deposition at the head of the Saguenay fjord is related to input from local landslide events and to the intensity of the spring freshet.

1239
Schafer, C.T., Smith, J.N., Seibert, G. 1983. Significance of natural and anthropogenic sediment inputs to the Saguenay fjord, Quebec. In: Sedimentology of Fjords, ed., J.P.M. Syvitski and J.M. Skei. Sedimentary Geology 36(2/4): 177-194.

1240
Schafer, C.T., Smith, J.N., Tan, F.C., Williams, D.F., Scott, D.B., Mudie, P.J. 1982. Sedimentation rates during glacial, and interglacial intervals - northeast Newfoundland continental slope and rise [abstract]. In: International Congress on Sedimentology (11th : 1982 : McMaster University, Hamilton, Ont.), abstracts of papers. Hamilton: McMaster University, Department of Geology. P.47.

1241
Schafer, C.T., Tan, F.C., Williams, D.F. 1982. Holocene paleoceanographic signals in continental slope and rise sediments off N.E. Newfoundland [abstract]. In: Joint Oceanographic Assembly (1982 : Halifax, N.S.), poster abstracts. Halifax: The Conference. V.2: 123.

1242
Schafer, C.T., Tan, F.C., Williams, D.F., Smith, J.N. 1984. Late glacial to recent stratigraphy and sedimentary processes: Newfoundland continental slope and rise [abstract]. In: Joint Programme with Abstracts; Annual Congress, Canadian Meteorological and Oceanographic Society (18th : 1984 : Halifax, N.S.) [and] annual meeting, Canadian Geophysical Union (11th : 1984 : Halifax, N.S.) = Programme Conjoint avec Résumés; Congrès Annuel, Société Canadienne de Météorologie et d'Océanographie (18e : 1984 : Halifax, N.-E.) [et] Réunion Annuelle, l'Union Canadienne de Géophysique (11e : 1984 : Halifax, N.-E.), ed., E.J. Truhlar. Halifax: The Conference. P.63.

1243
Schafer, C.T., Vilks, G., Ascoli, P. 1976. Symposium on benthonic foraminifera. Geoscience Canada 3(2): 119-122.

This report describes the technical content and highlights of the first international symposium on benthonic foraminifera ("Benthonics

'75") held in Halifax in August 1975.

1244
Schafer, C.T., Vilks, G., Ascoli, P. 1977. Summary of reports. In: International Symposium on Benthonic foraminifera of continental margins (1st: 1975: Halifax). Maritime Sediments Special Publication 1: 773-778.

Report of the technical content and highlights of the "Benthonics '75 Symposium".

1245
Schafer, C.T., Wagner, F.J.E. 1978. Foraminifera-mollusc associations in eastern Chaleur Bay. Canadian Journal of Earth Sciences 15(6): 889-901. (BIO Contribution No. 828)

Deep bay environments that are influenced by Atlantic water are best characterized by the molluscs Yoldia limatula and Periploma fragile while cold Gaspe current water favors certain arenaceous foraminifera species (e.g. Reophax scottii).

1246
Schafer, C.T., Wagner, F.J.E., Ferguson, C. 1975. Occurrence of foraminifera, molluscs and ostracods adjacent to the industrialized shoreline of Canso Strait, Nova Scotia. Water, Air and Soil Pollution 5(1): 79-96. (BIO Contribution No. 524)

This report summarizes environmental relationships in Canso Strait with particular emphasis on conditions within the ostracod-barren zone.

1247
Schafer, C.T., Young, J.A. 1977. Experiments on mobility and transportability of some nearshore benthonic foraminifera species. Geological Survey of Canada Paper 77-1C: 27-31.

1248
Scheidegger, K.F., Kulm, L.D. 1973. Heavy mineralogy of unconsolidated sands in northeastern Pacific sediments: Leg 18, Deep Sea Drilling Project. In: Initial Reports of the Deep Sea Drilling Project, L.D. Kulm, R. Von Huene, et al. Washington: U.S. Government Printing Office. V.18: 877-887.

1249
Schlee, J.S., Jansa, L.F. 1981. The paleoenvironment and development of the eastern North American continental margin. In: International Geological Congress (26th : 1980 : Paris) Colloque C3, Géologie des Marges Continentales = Geology of Continental Margins. Oceanologica Acta 4(supplement): 71-80.

Geophysical studies (multichannel reflection seismic, gravity and magnetics) were combined with the results of offshore drilling to reconstruct the structural and stratigraphic development of the continental margin from the southern Grand Banks to Florida.

1250
Schouten, H., Srivastava, S.P., Klitgord, K.D. 1984. Iberian plate kinematics: jumping plate boundaries, an alternative to ball-bearing plate tectonics [abstract]. Eos; Transactions, American Geophysical Union 65(16): 190.

An alternative model for the Iberian plate is proposed: it was either part of the Eurasian or African plate, with the boundary between these two latter plates jumping successively to discrete locations.

1251
Scott, D.B., Baki, V., Younger, C.D., Mudie, P.J., Vilks, G. 1984. Oxygen isotope studies on late Pleistocene-Holocene benthonic foraminifera from the eastern Canadian margin [abstract]. Geological Society of America, abstracts with programs 16(6): 649.

The benthic foraminiferan, Islandiella teretis, was used to obtain an oxygen isotopic record for a core of Holecene sediment from the eastern Canadian continental shelf. This new information allows us to place limits on water salinity and temperature characteristics for newshore deglaciation events.

1252
Scott, D., Gradstein, F.M., Schafer, C.T., Miller, A., Williamson, M.A. 1983. The recent as a key to the past: does it apply to agglutinated foraminiferal assemblages? In: Proceedings of the Workshop on Arenaceous Foraminifera (1st : 1981 : Amsterdam, The Netherlands), ed., J.G. Verdenius, J.E. Van Hinte, and A.R. Fortuin. Trondheim, Norway: Continental Shelf Institute. P.147-157. (Institutt for Kontinentalsokkelundersokelser, IKU Publication 108)

Marsh fauna are stable through time and completely distinct from deep water fauna. The search for the "living flysch-type" fauna can be restricted to the modern slopes; worldwide bathymetric distribution confirms the Gradstein-Berggren paleobathymetric model for the Labrador and North Seas.

1253
Scott, D.B., Medioli, F.S., Schafer, C.T. 1977. Temporal changes in foraminiferal distributions in Miramichi River estuary, New Brunswick. Canadian Journal of Earth Sciences 14(7): 1566-1587. (BIO Contribution No. 667)

The establishment of a transitional foraminiferal assemblage in inner Miramichi Bay over the past 10 years is indicative of a significant decrease in tidal flushing.

1254
Scott, D.B., Mudie, P.J., Bradshaw, J.S. 1976. Benthonic foraminifera of three southern California lagoons: ecology and recent stratigraphy. *Journal of Foraminiferal Research* 6(1): 59-75.

1255
Scott, D.B., Mudie, P.J., Vilks, G. 1982. Holocene-Late Wisconsian paleoceanographic events on the Scotian shelf, Canada [abstract]. *Geological Society of America, abstracts with programs* 14(7): 613.

1256
Scott, D.B., Mudie, P.J., Vilks, G., Younger, D.C. 1984. Latest Pleistocene-Holocene paleoceanographic trends on the continental margin of eastern Canada: foraminiferal, dinoflagellate and pollen evidence. *Marine Micropaleontology* 9(3): 181-218.

1257
Scott, D.B., Piper, D.J.W., Panagos, A.G. 1979. Recent salt marsh and intertidal mudflat foraminifera from the western coast of Greece. *Rivista Italiana di Paleontologia e Stratigrafia* 85(1): 243-266.

1258
Searle, R.C., Buckley, D., Auffret, G., Schuttenhelm, R., Kelts, K., Laine, E. 1982. Site selection task group (SSTG). In: *International NEA/Seabed Working Group Meeting (7th : 1982 : La Jolla, California)*, ed., D.R. Anderson. Albuquerque, NM: Sandia National Laboratories. P.69-96. Available from: NTIS, Sand 82-0460.

1259
Searle, R.C., Laughton, A.S., Loncarevic, B.D. 1978. Site survey for Site 410, an example of the use of long-range side scan sonar (Gloria). In: *Initial Reports of the Deep Sea Drilling Project*, B.P. Luyendyk et al. Washington: U.S. Government Printing Office. V.49: 413-418.

1260
Seibold, E., Lancelot, Y., Cepek, P., Dean, W.E., Eremeev, V., Gardner, J.V., Jansa, L.F., [et al.] 1976. Subsidence and uplift off west Africa - geological results from Leg 41, Deep Sea Drilling Project [abstract]. In: *Proceedings of the International Symposium on Continental Margins of Atlantic Type (1975 : Sao Paulo, Brazil)*. *Anais da Academia Brasileira de Ciencias* 48 (Supplemento): 297.

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The file contains six-minute grid mean values of free air gravity and magnetic anomalies in Marsden Square 149. The results were calculated on data collected on five cruises from 107,000 stations. The number of stations in each one degree square in Marsden Square 149 are also given. This is not the final report.

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A sea base gravity value is defined for locations where the gravity data pseudo-crossover discrepancy from two different cruises is less than 4.5 mgal. A total of 2655 sea base gravity values for Marsden Square 150 is obtained and given in this report. These sea base gravity values can be used as check-points for providing an estimate of gravity measurement accuracy or for identifying malfunctions of the gravimeter system at sea.

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Strait between 78°N and 62°N. Geological Survey of Canada Open File 839. 1p., 2 maps.

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A review of our knowledge on the structure, origin and evolution of Davis Strait as obtained from synthesis of all geological and geophysical data in this region. It is suggested that Davis Strait was formed by seafloor spreading and is underlain by oceanic crust.

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The question of sinister movement along Nares Strait as predicted by plate tectonic models is examined and it is concluded that nonrigid behaviour of the plates is the only satisfactory way to acccount for no or little movement along the strait as the geology demands.

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Srivastava, S.P., Folinsbee, R.A. 1975. Measurement of variations in the total geomagnetic field at sea off Nova Scotia. Canadian Journal of Earth Sciences 12(2): 227-236. (BIO Contribution No. 449)

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Steiger, T., Jansa, L.F. 1984. Jurassic limestones of the seaward edge of the Mazagan carbonate platform, northwest African continental margin, Morocco. In: Initial Reports of the Deep Sea Drilling Project, [by] K. Hinz, E.L. Winterer, et al. Washington: U.S. Government Printing Office. V.79: 449-477.

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This paper suggests that the observed delays in the travel times of P-waves, reflected beneath the Fogo seamounts, south of the Grand Banks, are related to an area of anomalously high temperatures and low velocities within the upper mantle below these structures. This low velocity zone may be a remanent effect of a mantle plug formed when sea floor spreading was active in the area during the cretaceous.

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The report accompanies a series of maps indicating the percentages gravel, sand, silt, clay, mud and the distribution of total sediment assemblages over Hamilton Bank and periphery. The bottom sediments of the bank are muddy fine sands fringed in sequence by well-sorted medium sands and by a belt of poorly sorted sandy gravel and boulders. Two inner shelf basins, Cartwright Saddle and Hawke Saddles, parts of the Labrador marginal channel, are floored by clayey silts.

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A report describing the investigations, objectives, methodology, results and conclusions of the grounding of the Liberian bulk carrier M/V COLON BROWN on Lighthouse Bank in Halifax Harbour on April 4, 1975. In order to refloat the vessel, 13,680 metric tons of her gypsum cargo were dumped into the sea. The report also describes the circumstances of her grounding, physical nature of the cargo and the geomorphology of her temporary resting place, Lighthouse Bank.

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sediment-seawater interactions [abstract]. *Marine Chemistry* 12(2/3): 233.

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Stover, L.E., Williams, G.L. 1982. Dinoflagellates: past and present [abstract]. In: *North American Paleontological Convention (3rd : 1982 : Montreal, Que.), abstracts*. *Journal of Paleontology* 56(2-Supplement): 27.

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Stow, D.A.V., Alam, M., Piper, D.J.W. 1984. Sedimentology of the Halifax Formation, Nova Scotia: Lower Paleozoic fine-grained turbidites. In: *Fine-Grained Sediments: Deep-Water Processes and Facies*, ed., D.A.V. Stow and D.J.W. Piper. Oxford: published for the Geological Society by Blackwell Scientific Publications. P.127-144.

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Stow, D.A.V., Piper, D.J.W. 1984. Deep-water fine-grained sediments: facies models. In: *Fine-Grained Sediments: Deep-Water Processes and Facies*, ed., D.A.V. Stow and D.J.W. Piper. Oxford: published for the Geological Society by Blackwell Scientific Publications. P.611-646.

Facies models and typical sediment sequences are defined for fine grained turbidites, contourites, and hemipelagetes sediments.

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Stow, D.A.V., Piper, D.J.W. 1984. Deep-water fine-grained sediments: history, methodology and terminology. In: *Fine-Grained Sediments:*

Deep-Water Processes and Facies, ed., D.A.V. Stow and D.J.W. Piper. Oxford: published for the Geological Society by Blackwell Scientific Publications. P.3-14.

This paper reviews the history of scientific ideas relating to deep-water, fine-grained sediments; methods available for their study and the current state of nomenclature.

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Sullivan, K.D., Keen, C.E. 1978. On the nature of the crust in the vicinity of the southeast Newfoundland ridge. Canadian Journal of Earth Sciences 15(9): 1462-1471. (BIO Contribution No. 791)

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Vilks, G. 1976. The disposal of high level nuclear waste in the oceans.

Geoscience Canada 3(4): 295-298.

A number of papers presented in a workshop called to discuss the dumping of high-level nuclear waste in the sea floor are discussed including a summary of recommendations for future work.

1463
Vilks, G. 1977. Trends in the marine environment of the Canadian Arctic Archipelago during the Holocene. In: *Polar Oceans*, ed., M.J. Dunbar. Calgary: Arctic Institute of North America. P.643-653.

Possible changes in the marine environment of the Canadian Arctic Archipelago are described on the basis of foraminiferal evidence.

1464
Vilks, G. 1978. *Recent foraminifera*, by Esteban Boltovskoy and Ramil Wright [book review]. *Geoscience Canada* 5(1): 44-45.

1465
Vilks, G. 1979? Sedimentary environment off Hamilton Inlet, Labrador. In: *Proceedings of symposium on research in the Labrador coastal and offshore regions (1979 : St. John's)*. St. John's, Newfoundland: Memorial University. P.148-166.

On the basis of C-14 dates, sediment size analysis and foraminifera, Holocene paleosedimentation is compared in two basins off Hamilton Inlet, Labrador shelf.

1466
Vilks, G. 1980. Book review of *Radioaktivo atkritumu noglabasana okeana dzelmes [disposal of radioactive wastes in the deep of the oceans]*. *Technikas Apskats* 90: 1-4.

1467
Vilks, G. 1980. Late glacial and post glacial boundary in sediments of eastern Canada, Denmark and Norway [abstracts]. *Geological Association of Canada Annual Meeting abstracts* 5: 86.

Late glacial postglacial boundary in Canadian and European shelf sediments is defined with the decrease of *Elphidium excavatum* forma *clavata*.

1468
Vilks, G. 1980. Postglacial basin sedimentation on Labrador shelf. *Geological Survey of Canada Paper* 78-28. 28p.

1469
Vilks, G. 1981. Late glacial-postglacial foraminiferal boundary in sediments of eastern Canada, Denmark and Norway. *Geoscience Canada* 8(2): 48-55.

Reduction in relative numbers of Elphidium excavatum f. clavata in sediment cores is used to establish late glacial-postglacial boundary.

1470
Vilks, G. 1981. Science and technology: bridging the frontiers: AAAS Annual Meeting, January 3-8, 1981. Geoscience Canada 8(3): 126-128.

1471
Vilks, G. 1982. Canada (summary of results). In: International NEA/Seabed Working Group Meeting (7th : 1982 : La Jolla, California), ed., D.R. Anderson. Albuquerque, NM: Sandia National Laboratories. P.14-16. Available from: NTIS, SAND 82-0460

1472
Vilks, G. 1983. Marine geology, by J.P. Kennett [book review]. Geoscience Canada 10(4): 222-223.

1473
Vilks, G. 1984. Pleistocene-Holocene basin sedimentation, east coast of Canada. Geological Survey of Canada Paper 84-1A: 643-646.

1474
Vilks, G., Aksu, A. 1984. Foraminifera from the Lomonosov Ridge and adjacent basins, central Arctic Ocean [abstract]. In: Joint Programme with Abstracts; Annual congress, Canadian Meteorological and Oceanographic Society (18th : 1984 : Halifax, N.S.) [and] Annual Meeting, Canadian Geophysical Union (11th : 1984 : Halifax, N.S.) = Programme conjoint avec résumés; Congrès Annuel, Société Canadienne de Météorologie et d'Océanographie (18e : 1984 : Halifax, N.-E.) [et] Réunion Annuelle, l'Union Canadienne de Géophysique (11e : 1984 : Halifax, N.-E.), ed., E.J. Truhlar. Halifax: The Conference. P.62-63.

Foraminifera from surface sediments are compared along a traverse across the Lomonosov Ridge. Calcareous Arctic deep water species dominate the assemblages in Makarow basin and on top of Lomonosov ridges agglutinated species in the deeper and colder water of Fram basin.

1475
Vilks, G., Anthony, E.H., Williams, W.T. 1970. Application of association-analysis to distribution studies of recent foraminifera. Canadian Journal of Earth Sciences 7(6): 1462-1469.

1476
Vilks, G., Buckley, D. 1982. Deposition and early diagenesis of sediments in the distal Sohm Abyssal Plain [abstract]. In: International Congress on Sedimentology (11th : 1982 : McMaster University, Hamilton, Ont.), abstracts of papers. Hamilton: McMaster University, Dept. of Geology. P.46.

1477
Vilks, G., Buckley, D.E., Cranston, R.E. 1981. Summary of national policies and positions: Canada. In: *Proceedings of the Annual NEA-Seabed Working Group Meeting (6th : 1981 : Paris)*, ed., D.R.Anderson. Albuquerque, NM: Sandia National Laboratories. P.12-13. Available from NTIS: SAND 81-0427

1478
Vilks, G., Deonarine, B., Rashid, M., Winters, G. 1984. Late glacial-postglacial land-sea interaction in Lake Melville, southeastern Labrador. In: *Annual Arctic Workshop (13th : 1984 : Institute of Arctic and Alpine Research, Boulder, Co)*. Boulder, Co: The Workshop. P.56-57.

The early post glacial deposits in Lake Melville are laminated and umfossiliferous and relatively high in humic acids, suggesting low oxygen levels in bottom waters during deposition. Subsequently the anoxic bottom condition was replaced by a more open marine environment that became brackish with shallowing sill depth at the entrance of the lake.

1479
Vilks, G., Deonarine, B., Wagner, F.J., Winters, G.V. 1982. Foraminifera and mollusca in surface sediments of southeastern Labrador shelf and Lake Melville, Canada. *Geological Society of America Bulletin* 93(3): 225-238.

1480
Vilks, G., Deonarine, B., Winters, G. 1980. Foraminifera in surface sediments of southeastern Labrador shelf and Lake Melville, Canada [abstract]. *Geological Society of America, abstracts with programs* 12(7): 541.

1481
Vilks, G., Hall, J.M., Piper, D.J.W. 1977. The natural remanent magnetization of sediment cores from the Beaufort Sea. *Canadian Journal of Earth Sciences* 14(9): 2007-2012. (BIO Contribution No. 647)

1482
Vilks, G., Hardy, I.A. 1983. The 12th Arctic Workshop. *Geoscience Canada* 10(3): 125-127.

1483
Vilks, G., Hardy, I., Josenhans, H.W. 1984. Late Quaternary stratigraphy of the inner Labrador shelf. *Geological Survey of Canada Paper* 84-1A: 57-65.

1484
Vilks, G., Joice, G. 1976. Foraminifera in sediment cores from Beaufort Sea and Parry Channel, Canadian Arctic. *Bedford Institute of Oceanography Data Series* BI-D-76-1. 201p.

Report contains a quantitative list of foraminifera from 61 cores, 1080 subsamples.

1485
Vilks, G., Krauel, D.P. 1982. Environmental geology of the Miramichi estuary: Physical Oceanography. Geological Survey of Canada Paper 81-24. 53p.

On the basis of seasonal variability in salinity and currents, circulation of the Miramichi estuary system is described.

1486
Vilks, G., McLaren, P. 1975. Foraminifera of an ice-scoured nearshore zone in the Canadian Arctic [abstract]. In: Abstracts, Benthonics '75. Halifax: Dalhousie University. P.50.

1487
Vilks, G., Mudie, P.J. 1978. Early deglaciation of the Labrador shelf. Science 202(4373): 1181-1183. (BIO Contribution No. 728)

1488
Vilks, G., Mudie, P.J. 1978. Early Wisconsinan deglaciation on Labrador shelf [abstract]. Geological Society of America, abstracts with programs 10(7): 509.

1489
Vilks, G., Mudie, P.J. 1982. Postglacial paleoceanography and paleoclimate in Lake Melville, Labrador [abstract]. In: Arctic Workshop (11th : 1982 : Boulder, CO). Boulder: Institute of Arctic and Alpine Research. P.46-47.

1490
Vilks, G., Mudie, P.J. 1983. Evidence for postglacial paleoceanographic and paleoclimatic changes in Lake Melville, Labrador, Canada. Arctic and Alpine Research 15(3): 307-320.

1491
Vilks, G., Mungall, C. 1979. Monitoring the deep ocean. Geos 1979 (winter): 13-15.

1492
Vilks, G., Rashid, M.A. 1975. Foraminifera and organic geochemistry of two sediment cores from a pockmarked basin of the Scotian Shelf. Geological Survey of Canada Paper 75-1C: 5-6.

1493
Vilks, G., Rashid, M.A. 1976. Postglacial paleoceanography of Emerald basin, Scotian shelf. Canadian Journal of Earth Sciences 13(9): 1256-1267. (BIO Contribution No. 593)

Foraminifera and organic compoundss in two sediment cores indicate that during Late Pleistocence-Early Holocene times brackish waters existed in Emerald basin and that the sea floor was well oxygenated.

1494
Vilks, G., Rashid, M.A. 1976. Preservation of organic matter and methane in the sediments of a subarctic continental shelf [abstract]. In: Abstracts, International Geological Congress (25th : 1976 : Sydney). [s.l.: s.n.]. V.1: 256-257.

1495
Vilks, G., Rashid, M.A. 1977. Methane in the sediments of a subarctic continental shelf. Geoscience Canada 4(4): 191-197. (BIO Contribution No. 666)

1496
Vilks, G., Rashid, M.A., Delgado, C. 1981. Interpretation of paleoceanographic conditions on the Peru shelf using paleoecology and geochemistry. In: Investigacion Cooperativa de la Anchoveta y su Ecosistema - ICANE - Entre Peru y Canada, ed., A.L. Cannon. Instituto del Mar del Peru Boletin Volumen Extraordinario: 269-273.

Distribution of planktonic foraminifera and C dates indicate extensive sediment mixing and reworking on the continental shelf off Peru.

1497
Vilks, G., Rashid, M.A., Van der Linden, W.J.M. 1974. Methane in recent sediments of the Labrador shelf. Canadian Journal of Earth Sciences 11(10): 1427-1434. (BIO Contribution No. 438)

Methane, up to a concentration of about 16000 ppm was found in a sediment core of Labrador shelf. Its origin appears to be due to bacterial fermentation of organic matter, unrelated to petroleum genesis processes.

1498
Vilks, G., Schafer, C.T., Walker, D.A. 1975. The influence of a causeway on oceanography and foraminifera in the Strait of Canso, Nova Scotia. Canadian Journal of Earth Sciences 12(12): 2086-2102. (BIO Contribution No. 522)

Marine environment in the Strait of Canso is described including changes that were caused by the building of a causeway.

1499
Vilks, G., Swift, S.A. 1978. Sampling of bottom sediments in the equatorial Pacific following test manganese mining [abstract]. Geological Survey of Canada Paper 78-1C: 99-100. (NOAA/ERL Pacific Marine 376)

1500
Vilks, G., Wagner, F.J.E. 1977. Holocene history of sedimentary processes in southeastern Beaufort Sea based on foraminifera and mollusca [abstract]. Geological Association of Canada, annual meeting program with abstracts 2: 54.

1501
Vilks, G., Wagner, F.J.E., Pelletier, B.R. 1979. The Holocene marine environment of the Beaufort shelf. Geological Survey of Canada Bulletin 303. 43p.

1502
Vilks, G., Walker, D.A. 1974. Morphology of Orbulina universa d'Oribigny in relation to other spinose planktonic foraminifera. Journal of Foraminiferal Research 4(1): 1-8. (BIO Contribution No. 398)

1503
Vilks, G., Wang, Y. 1981. Surface texture of quartz grains and sedimentary processes on the southeastern Labrador Shelf. Geological Survey of Canada Paper 81-1B: 55-61.

Possible late glacial-postglacial sedimentary environment is described on the basis of surface texture of quartz grains and foraminifera.

1504
Vogt, P.R., Kovacs, L.C., Bernero, C., Srivastava, S.P. 1982. Asymmetric geophysical signatures in the Greenland, Norwegian and southern Labrador seas and the Eurasia basin. Tectonophysics 89(1/3): 95-160.

1505
Von Huene, R., Kulm, L.D., Duncan, J.R., Ingle, J.C., Kling, S.A., Musich, L.M. Piper, D.J.W., Pratt, R.M., Schrader, H.-J., Weser, O., Wise, S.W. 1971. Deep Sea Drilling Project, Leg 18. Geotimes 16(10): 12-15.

1506
Von Huene, R., Piper, D.J.W., Duncan, J. 1973. Measurements of porosity in sediments of the lower continental margin, deep sea fans, the Aleutian trench, and Alaskan abyssal plain. In: Initial Reports of the Deep Sea Drilling Project, L.D. Kulm, R. Von Huene, et al. Washington: U.S. Government Printing Office. V.18: 889-895.

1507
Voppel, D., Srivastava, S.P., Fleischer, U. 1979. Detailed magnetic measurements south of the Iceland-Faroe ridge. Deutsche Hydrographische Zeitschrift 32(4): 154-172.

Interpretation of detailed magnetic data collected onboard FS Komet southwest of the Iceland-Faeroe ridge show presence of anomalies 13 to 24 without any major offsets. Presence of an additional anomaly 24 in this region has been shown resulting from a jump of the ridge axis to the west. Similar jump has also been shown for the Iceland-Faroe ridge. We postulate that most of the Iceland-Faroe ridge was formed prior to anomaly 21 time.

1508
Wade, J.A. 1973. Regional geology of the Mesozoic-Cenozoic sediments off Nova Scotia and Newfoundland. Geological Survey of Canada Paper 73-1B: 99.

Summary of findings to date in study of seismic and well data from offshore eastern Canada.

1509
Wade, J.A. 1974. Regional geology of the Mesozoic-Cenozoic sediments off Nova Scotia and Newfoundland. Geological Survey of Canada Paper 74-1B: 147-149.

Outlines and describes newly delineated tectonic elements in offshore eastern Canada.

1510
Wade, J.A. 1977. Stratigraphy of Georges Bank basin: interpreted from seismic correlation to the western Scotian shelf. Canadian Journal of Earth Sciences 14(10): 2274-2283. (BIO Contribution No. 681)

Describes and illustrates the stratigraphy and facies occurring beneath Georges Bank and delineates the main tectonic elements. Corrects previous stratigraphic interpretation, published by U.S.G.S., by tying to Scotian shelf seismic and well data. Summarizes the results of geological interpretation of Georges Bank data.

1511
Wade, J.A. 1978. The geological history of the northeastern margin of North America [abstract]. In: Abstracts of the Proceedings of the Annual Meeting of the American Association of Stratigraphic Palynologists (9th : 1976 : Halifax). Palynology 2: 234.

1512
Wade, J.A. 1978. The Mesozoic-Cenozoic history of the northeastern margin of North America. In: Proceedings, Offshore Technology Conference (10th : 1978 : Houston). [s.l.]: The Conference. V.3: 1849-1858. (BIO Contribution No. 823)

Reviews the geologic history of the Scotian basin and compares this with Georges Bank and the Grand Banks. Variations in stratigraphy and present day structural styles are illustrated. Summarizes the present state of knowledge of regional structure and stratigraphy of the Atlantic margin of Canada. Reviews the hydrocarbon potential of the three regions described.

1513
Wade, J.A. 1981. Geology of the Canadian Atlantic margin from Georges Bank to the Grand Banks. In: Geology of the North Atlantic Borderlands, ed., J.W. Kerr and A.J. Fergusson. Calgary: Canadian Society of Petroleum Geologists. P.447-460. (Canadian Society of Petroleum Geologists Memoir 7)

Review paper on the geological history of the Atlantic margin of eastern Canada.

1514
Wade, J.A. 1981. Hydrocarbon model for the Scotian shelf [abstract]. American Association of Petroleum Geologists Bulletin 65(9): 1672.

1515
Wade, J.A. 1983. Hydrocarbon appraisals of sedimentary basins. BIO Review '83: 19.

1516
Wade, J.A., Grant, A.C., Sanford, B.V., Barss, M.S. 1975. Basement structure, eastern Canada and adjacent areas. In: Offshore Geology of Eastern Canada: Volume 2 - Regional Geology, ed., W.J.M. Van der Linden and J.A. Wade. Geological Survey of Canada Paper 74-30: Map holder 2, map 1400 a.

Map shows tectonic elements and topographical configurations of basement rocks beneath each of the sedimentary basins of eastern Canada.

1517
Wade, J.A., Van der Linden, W.J.M. (Eds.) 1975. Offshore geology of eastern Canada, Volume 2 - Regional Geology. Geological Survey of Canada Paper 74-30(2). 258p.

This volume presents an account of the geology of the continental margin of eastern Canada, with 14 papers authored primarily by the staff of the Atlantic Geoscience Centre.

1518
Wagner, F.J.E. 1975. Mollusca of the Strait of Canso area. Geological Survey of Canada Paper 75-23. 29p. (BIO Contribution No. 582)

1519
Wagner, F.J.E. 1976. Mollusc distributions, Miramichi estuary, New Brunswick. Geological Survey of Canada Paper 76-1C: 45.

Preliminary study indicates mollusc distribution in the Miramichi River and estuary to be salinity-dependent.

1520
Wagner, F.J.E. 1977. Mollusc distribution, Bay of Fundy area, New Brunswick and Nova Scotia. Geological Survey of Canada Paper 77-1B: 97-98.

Nine molluscan biotopes have been delineated in St. Marys Bay and Bay of Fundy, controlled apparently by a combination of bottom sediment type and depth. Mid-Wisconsinan molluscan assemblages in southwestern Nova Scotia show a marked affinity with biotope 1 in St. Marys Bay.

1521
Wagner, F.J.E. 1977. Mollusc distribution, Chaleur Bay, New Brunswick-Quebec. Geological Survey of Canada Paper 77-1C: 57-60.

Five molluscan biotopes are recognized in Chaleur Bay and their relationship to certain environmental factors is noted.

1522
Wagner, F.J.E. 1977. Palaeoecology of marine Pleistocene mollusca, Nova Scotia. Canadian Journal of Earth Sciences 14(6): 1305-1323. (BIO Contribution No. 653)

1523
Wagner, F.J.E. 1977. Recent mollusc distribution patterns and palaeobathymetry, southeastern Beaufort Sea. Canadian Journal of Earth Sciences 14(9): 2013-2028. (BIO Contribution No. 651)

The total molluscan fauna is evaluated and index species are chosen as a standard for palaeoecological interpretation. Sea level changes are postulated using molluscs obtained from the cores.

1524
Wagner, F.J.E. 1979. Distribution of pelecypods and gastropods in the Bay of Fundy and eastern Gulf of Maine. Proceedings of the Nova Scotian Institute of Science 29(4): 447-464. (BIO Contribution No. 897)

Molluscan assemblages from the Bay of Fundy and eastern Gulf of Maine are analyzed giving ten biotopes. The biotopes are related to water depth and to substrate.

1525
Wagner, F.J.E. 1984. Fossils of Ontario, part 2. Macroinvertebrates and vertebrates of the Champlain Sea. Toronto: Royal Ontario Museum. 64p. (Royal Ontario Museum Life Sciences Miscellaneous Publications)

Macroinvertebrate and vertebrate fossils found in the Champlain Sea deposits in Ontario are described and illustrated.

1526
Wagner, F.J.E. 1980. A faunal interpretation of tidal evolution in Minas

Basin, Nova Scotia. Géographie Physique et Quaternaire 34(2): 253-257.

1527
Wagner, F.J.E. 1984. Illustrated catalogue of the mollusca (gastropoda and bivalvia) in the Atlantic Geoscience Centre index collection. Ottawa: Geological Survey of Canada; Minister of Supply and Services Canada. 76p. (Available from: Canadian Government Publishing Centre, Ottawa, Ont. (Cat. No. M40-43/1984e))

1528
Wagner, F.J.E. 1984. Regional distribution of marine mollusca (gastropods and pelecypods) in eastern Canada. Geological Survey of Canada Paper 84-1B: 367.

A molluscan index collection was set up at AGC and an illustrated catalogue produced.

1529
Wagner, F.J.E., Schafer, C.T. 1980. Upper Holocene paleoceanography of inner Miramichi Bay. Maritime Sediments 16(1/3): 5-10.

An interpretation of faunal and environmental changes in Miramichi inner bay since 4500 yrs. B.P.

1530
Wahlgren, R.V., Lewis, C.F.M. 1977. Estimation of bulk density and water content of Beaufort Sea sediment cores using x-radiographs. Geological Survey of Canada Paper 77-1A: 465-470.

1531
Walker, D.A. 1975. An in situ investigation of life cycles of benthonic midlittoral foraminifera [abstract]. In: Abstracts, Benthonics '75. Halifax: Dalhousie University. P.51.

1532
Walker, D.A. 1976. An in situ investigation of life cycles of benthonic midlittoral foraminifera. In: International Symposium on Benthonic Foraminifera of Continental Margins (1st: 1975: Halifax), ed., C.T. Schafer and B.R. Pelletier. Maritime Sediments Special Publication 1: 51-59. (BIO Contribution No. 614)

Life history investigation of tidepool foraminifera suggests that only the schizontic generations are found in the intertidal zone.

1533
Walker, D.A., Buckley, D.E. 1969. Some techniques and applications of scanning electron microscopy in the fields of marine science. Maritime Sediments 5(3): 113-118.

1534
Walker, D.A., Linton, A.E., Schafer, C.T. 1974. Sudan black b: a superior stain to rose bengal for distinguishing living from non-living foraminifera. Journal of Foraminiferal Research 4(4): 205-215. (BIO Contribution No. 458)

1535
Walker, D.A., Parsons, A.D. 1975. An evaluation of six research scanning electron microscopes. Bedford Institute of Oceanography Report Series BI-R-75-10. 53p. + 16 plates.

An extensive evaluation of research scanning electron microscopes has shown that, in preparation to purchasing such instrumentation, one should base his decision on a substantial knowledge of SEM operation and technology, a demonstration of the user's samples, and a certain degree of compromise.

1536
Walker, D.A., Parsons, A.D. 1975. Methods to evaluate scanning electron microscopes. Bedford Institute of Oceanography Report Series BI-R-75-11. 15p.

1537
Walker, D.A., Vilks, G. 1973. Spinal ultrastructure of the planktonic foraminifers Hastigerina Thomson and Globigerinella Cushman. Journal of Foraminiferal Research 3(4): 196-198. (BIO Contribution No. 382)

Scanning electron microscopy has revealed the presence of spinal barbs along the edges of the triradiate spines of the planktonic foraminifer Hastigerina pelagica (d'Orbigny). These structures were lacking on all Globigerinella aequilateralis (Brady) speciments examined, suggesting that the genus Globigerinella Cushman is valid and not a junior synonym of Haigerina Thomson.

1538
Wang, Y. 1983. The mudflat system of China. In: Proceedings of the Symposium on the Dynamics of Turbid Coastal Environments, ed., D.C. Gordon Jr. and A.S. Hourston. Canadian Journal of Fisheries and Aquatic Sciences 40(supplement 1): 160-171.

Processes of north China mud flat coast are controlled mainly by Yellow River.

1539
Wang, Y., Piper, D.J.W. 1982. Dynamic geomorphology of the Drumlin coast of southeast Cape Breton Island. Maritime Sediments and Atlantic Geology 18(1): 1-27.

1540
Wang, Y., Piper, D.J.W. 1982. Dynamic geomorphology of the Drumlin coast of

southeast Cape Breton Island [abstract]. In: Joint Oceanographic Assembly (1982 : Halifax, N.S.), poster abstracts. Halifax: The Conference. V.2: 30.

1541

Wang, Y., Piper, D.J.W., Vilks, G. 1982. Surface textures of turbidite sand grains, Laurentian fan and Sohm abyssal plain. Sedimentology 29(5): 727-736.

This paper applies surface sand grain texture information to infer details of the mode of deposition of deep sea turbidite sands. It also provides the first detailed description of the characteristic surface textures of turbidite sands.

1542

Wanless, R.K., Poole, W.H., King, L.H., Fader, G.B. 1981. Flemish Cap grandiorite: age and correlation [abstract]. Geological Society of America, abstracts with programs 13(3): 183.

1543

Warren, J.S. 1976. The morphology of two transverse channels on the northeast Newfoundland shelf. Maritime Sediments 12(1): 19-32.

A bathymetric map of the continental shelf off northeast Newfoundland has been compiled. Bathymetry, and seismic reflection data have been used to interest the geomorphological development of the area. This area is anomalous compared to shelves elsewhere off Canada's east coast, because it is has a greater water depth, and also because it contains areas of complex relief on the outer shelf.

1544

Watts, A.B. 1972. Geophysical investigations east of the Magdalen Islands, southern Gulf of St. Lawrence. Canadian Journal of Earth Sciences 9(11): 1504-1528. (BIO Contribution No. 322)

Detailed gravity and magnetic surveys confirm seismic refraction evidence of a deep (8-10km) Carboniferous infilled sedimentary basin (the Magdalen basin) between the Magdalen Islands and Newfoundland. The western Magdalen basin may represent one of the largest areas of salt accumulation in eastern Canada.

1545

Watts, A.B. 1974. A gravity survey of the continental shelf south of Cape Sable, Nova Scotia. Canadian Journal of Earth Sciences 11(7): 1329-1334. (BIO Contribution No. 423)

1546

Watts, A.B., Haworth, R.T. 1974. Geological interpretation of Bouguer anomaly and magnetic anomaly maps east of the Magdalen Islands, southern Gulf of St. Lawrence. Geological Survey of Canada Paper 74-55. 9p. + 2 maps. (Marine Sciences Paper 10) (BIO Contribution No. 424)

1547
Watts, A.B., Haworth, R.T. 1974. Geophysical survey of the Gulf of Maine and adjacent areas: HUDSON 71-014 cruise. Bedford Institute of Oceanography Data Series BI-D-74-2. 18p. + [241]p. of appendices.

Profiles and tables of the gravity, magnetic and bathymetric data collected are presented together with a gravity map.

1548
Wedler, E., Taylor, R.B. 1984. X- and C-band SAR image response over Malpeque barrier system, Prince Edward Island, Canada. In: Technical Papers of Annual Meeting of the American Society of Photogrammetry (50th : 1984 : Washington, DC). Falls Church, VA.: The Society. P.21-32.

X- and C-band synthetic aperture airborne radar imagery was acquired on Sept. 2/81 over Malpeque Bay, PEI. Its usefulness in interpreting coastal features such as present and former inlets, tidal deltas, nearshore bars, beach and dune ridges blowouts, ridge and runnel features and steep foredune slopes, is assessed. Tidal deltas and foredune slopes are better on C-HH imagery rather than HH imagery.

1549
Wells, I. 1977. Magrav users guide; A computer program to create two-dimensional gravity and/or magnetic models. Geological Survey of Canada Open File 597. 89p.

Release of a computer program to create two-dimensional gravity and/or magnetic models.

1550
Whitman, Benn & Associates 1983. Bedford Institute of Oceanography towing winch investigation. Geological Survey of Canada Open File 933. 35p. + appendices.

1551
Whitmarsh, R.B., Lilwall, R.C., Donegan, M.J., Keen, C.E., Loncarevic, B.D., Steinmetz, L. 1981. Progress report on Ladle [abstract]. Geophysical Journal 65(1): 263.

1552
Willey, J.D. 1976. Reactions which remove trace metals from seawater: Preliminary observations. Geological Survey of Canada Paper 76-1C: 71.

1553
Willey, J.D. 1976. Seasonal variations in the oceanography and sediment geochemistry in the Miramichi estuary, New Brunswick: A preliminary

report. Geological Survey of Canada Paper 76-1C: 47-50.

1554
Willey, J.D. 1977. Coprecipitation of zinc with silica in seawater and in distilled water. Marine Chemistry 5(3): 267-290. (BIO Contribution No. 640)

1555
Willey, J.D., Fitzgerald, R.A. 1980. Trace metal geochemistry in sediments from the Miramichi estuary, New Brunswick. Canadian Journal of Earth Sciences 17(2): 254-265. (BIO Contribution No. 903)

1556
Williamson, M.A. 1984. Benthic foraminiferal assemblages on the continental margin off Nova Scotia: their response to oceanography [abstract]. In: Atlantic Geoscience Society Colloquium on Current Research in the Atlantic Provinces (1984 : [Amherst, N.S.]), abstracts. [s.l.]: The Colloquium. P.43-44. Also published in Maritime Sediments and Atlantic Geology 20(2): 102-103.

Q-mode factor analysis of foraminiferal abundance data from the continental margin off Nova Scotia allow the determination of several distinct assemblages. Statistical relationships of these assemblages to aspects of the marine environment were investigated through multiple regression analysis. These indicate that the present distributions are in response to prevailing hydrography.

1557
Williamson, M.A., Keen, C.E., Mudie, P.J. 1984. Foraminiferal distribution on the continental margin off Nova Scotia. Marine Micropaleontology 9(3):

1558
Williams, C., Porteous, D.M., Shih, K.G. 1972. Gravity and magnetic data collected on the North Atlantic Ocean; CSS HUDSON 1965. Bedford Institute of Oceanography Data Series BI-D-72-9. 387p.

1559
Williams, G.L. 1974. Biostratigraphy and paleoecology of the Mesozoic and Cenozoic rocks of the Atlantic shelf. Geological Survey of Canada Paper 74-1B: 150-152.

Twenty palynomorph zones permit subdivision of the Middle Jurassic to Pleistocene sediments in the east coast offshore wells. The zones can be correlated with the formations proposed by McIver (1972).

1560
Williams, G.L. 1975. Dinoflagellate and spore stratigraphy of the Mesozoic-Cenozoic, offshore eastern Canada. In: Offshore Geology of Eastern Canada: Volume 2 - Regional geology, ed., W.J.M. Van der

Linden and J.A. Wade. Geological Survey of Canada Paper 74-30(2): 107-161. (BIO Contribution No. 565)

Twenty-six formal dinoflagellate zones are erected for the Middle Jurassic to Pleistocene rocks of offshore eastern Canada. The nonmarine to inner neritic environment in the Jurassic and Early Cretaceous gave way to outer neritic or deeper water deposition in the Late Cretaceous and Early Tertiary.

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Williams, G.L. 1976. Book review of Fossil and Living Dinoflagellates, by W.A.S. Sargeant. Geoscience Canada 3(2): 139-140.

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Williams, G.L. 1976. Comparison of Late Jurassic-Early Cretaceous Scotian shelf palynomorphs with coeval European assemblages [abstract]. In: American Association of Stratigraphic Palynologists, Proceedings of the Annual Meeting (7th : 1974 : Calgary, Alta). Baton Rouge, LA: Louisiana State University, School of Geoscience. P.147. (Geoscience and Man 15)

1563
Williams, G.L. 1977. Dinocysts; their classification, biostratigraphy and palaeoecology. In: Oceanic Micropalaeontology, ed., A.T.S. Ramsay. London: Academic Press. V.2: 1231-1325. (BIO Contribution No. 780)

Thirty dinocyst concurrent range zones and twelve subzones, named for index species, delineate the Late Triassic, Jurassic, Cretaceous, and Tertiary. The distinctive suite of species for each zone or subzone is presented. Seven major dinocyst lineages based on morphological characteristics can be recognized. Fossil dinocysts are viable paleoecological indicators, being sensitive to such parameters as temperature, water depth, salinity, ocean current patterns, and shoreline proximity.

1564
Williams, G.L. 1978. Dinoflagellates, acritarchs and tasmanitids. In: Introduction to Marine Micropaleontology, ed., B.U. Haq and A. Boersma. New York: Elsevier. P.293-326. (BIO Contribution No. 824)

An introductory coverage of dinoflagellates, acritarchs and tasmanitids. The modern theories of morphology and classification simplify and enhance the biostratigraphic and paleoecologic application of these fossils. A glossary facilitates the understanding of the descriptive terms.

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Williams, G.L. 1978. Palynological biostratigraphy, Deep Sea Drilling Project Sites 367 and 370. In: Initial Reports of the Deep Sea Drilling

Project, Supplement to Volumes 38, 39, 40 and 41, Y. Lancelot, E. Seibold, et al. Washington: U.S. Government Printing Office. P.783-815. (BIO Contribution No. 831)

The Scotian Shelf-Grand Banks palynological zonation for the Mesozoic-Cenozoic is applicable to DSDP Sites 367 and 370 in the eastern Atlantic. The plotting of reworked assemblages facilitates an understanding of the geological history. Four new species are described.

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Williams, G.L. 1983. East coast drilling and WELLSYS. BIO Review '83: 36-38.

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Williams, G.L. 1983. Pyroclasts. Geoscience Canada 10(2): 103-105.

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Williams, G.L. 1983. Pyroclasts. Geoscience Canada 10(3): 135.

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Williams, G.L., Brideaux, W.W. 1972. Palynological analysis of cored sediments from the Grand Banks, Newfoundland [abstract]. In: American Association of Stratigraphic Palynologists, Proceedings of the Annual Meeting (3rd : 1970 : Toronto, Ont). Baton Rouge, LA: Louisiana State University, School of Geoscience. P.136. (Geoscience and Man 4)

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Williams, G.L., Brideaux, W.W. 1975. Palynologic analyses of Upper Mesozoic and Cenozoic rocks of the Grand Banks, Atlantic continental margin. Geological Survey of Canada Bulletin 236. 162p.

Sixteen dinoflagellate divisions and 18 spore and pollen divisions can be recognized in the Upper Cretaceous-Tertiary sediments encountered in eight core holes on the Grand Banks. The geological history indicates a period of nonmarine deposition in the Albian followed by an extensive marine transgression in the Cenomanian. Throughout most of the Late Cretaceous and Tertiary the environment of depositon was open marine, generally deep water with occasional episodes of shallowing.

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Williams, G.L., Bujak, J.P. 1977. Cenozoic palynostratigraphy of offshore eastern Canada. In: Contributions of Stratigraphic Palynology. V.1, Cenozoic Palynology, ed., W.C. Elsik. American Association of Stratigraphic Palynologists Contribution Series 5A: 14-47. (BIO Contribution No. 816)

Twelve palynomorph assemblage zones permit dating and correlation of the Cenozoic in the Scotian shelf, Grand Banks and Labrador shelf wells.

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Williams, G.L., Bujak, J.P. 1977. Dinocyst diversity in time [abstract]. American Association of Stratigraphic Palynologists, Annual Meeting, Abstracts of Papers 10: 31.

Dinocyst genera and species diversities show marked fluctuations in the Mesozoic and Cenozoic.

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Williams, G.L., Bujak, J.P. 1977. Distribution patterns of some North Atlantic Cenozoic dinoflagellate cysts. Marine Micropaleontology 2(3): 223-233.

The lateral distribution of dinoflagellate cyst species: (1) in Scotian shelf-Grand Banks wells; (2) in the North Atlantic; and (3) worldwide, show patterns interpreted as reflecting paleoenvironmental and paleogeographic parameters. Lateral variations in the stratigraphic ranges of species also show fluctuations, emphasizing the importance of defining assemblage zones in biostratigraphy.

1574
Williams, G.L., Bujak, J.P. 1978. North Atlantic Cenozoic dinoflagellates [abstract]. Palynology 2: 236-237.

Fluctuations in the lateral and vertical distribution of Cenozoic dinoflagellates.

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Williams, G.L., Bujak, J.P. 1980. Palynological stratigraphy of Deep Sea Drilling Project Site 416. In: Initial Reports of the Deep Sea Drilling Project, Y. Lancelot, E.L. Winterev, et al. Washington: U.S. Government Printing Office. V.50: 467-495. (BIO Contribution No. 1011)

A Lower Cretaceous section from DSDP Site 416A, offshore north west Africa, is zoned and dated using dinoflagellates, spores and pollen.

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Williams, G.L., Davies, E.H. 1982. Cretaceous dinoflagellates and provincialism [abstract]. In: North American Paleontological Convention (3rd : 1982 : Montreal, Que.), Abstracts. Journal of Paleontology 56(2-Supplement): 30.

Predictive models show distinctive provincialism in Cretaceous assemblages of dinoflagellates.

1577
Williams, G.L., Downie, C. 1966. Further dinoflagellate cysts from the London Clay. Bulletin of the British Museum (Natural History), Geology Supp 3: 215-235.

Long existing taxa redefined according to modern theories of interpretation of the morphology.

1578
Williams, G.L., Downie, C. 1966. The genus Hystrichokolpoma. Bulletin of the British Museum (Natural History), Geology Supp 3: 176-181.

The first interpretation of the dinoflagellate tabulation of this genus as determined from the process distribution.

1579
Williams, G.L., Downie, C. 1966. Wetzeliella from the London Clay. Bulletin of the British Museum (Natural History), Geology Supp 3: 182-198.

The tabulation of Wetzeliella is shown to be peridiniacean.

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Williams, G.L., Gradstein, F.M. 1982. Stratigraphic charts of the Labrador and Newfoundland shelves. Geological Survey of Canada Open File 826. 12p.

1581
Williams, G.L., Jansa, L.F., Clark, D.F., Ascoli, P. 1974. Stratigraphy of the Shell Naskapi N-30 well, Scotian shelf, eastern Canada. Geological Survey of Canada Paper 74-50. 12p. + 1 chart. (BIO Contribution No. 439)

The biostratigraphic and lithostratigraphic studies on the subject well are collated and coordinated. Fossil groups studied include foraminifers, ostracods, dinoflagellates, spores and nannofossils.

1582
Williams, G.L., Sarjeant, W.A.S., Kidson, E.J. 1978. A glossary of the terminology applied to dinoflagellate amphiesmae and cysts and acritarchs: 1978 edition. American Association of Stratigraphic Palynologists Contribution Series 2A. 121p. (BIO Contribution No. 825)

The original and subsequent definitions, where appropriate, are given for 809 terms. All are illustrated and a further 137 terms listed as synonyms.

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Winder, C.G., Sanford, B.V. 1972. Stratigraphy and paleontology of the Paleozoic rocks of southern Ontario. International Geological

Congress (24th : 1972 : Montreal) Guidebook field excursion A45-C45. 74p. (BIO Contribution No. 357)

Outline of Paleozoic geology of southern Ontario. Contains 16 figures.

1584
Winters, G.V. 1981. Environmental geology of the Miramichi estuary: suspended sediment transport. Geological Survey of Canada Paper 81-16. 12p.

Suspended sediment dynamics were observed and modelled for the estimation of the annual transport from the Miramichi inner estuary.

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Winters, G.V. 1983. Modelling suspended sediment dynamics of the Miramichi estuary, New Brunswick, Canada. Canadian Journal of Fisheries and Aquatic Sciences 40(suppl.1): 105-116.

Suspended sediment transport in a variable salt wedge estuary has been studied using a polynomial model to estimate the annual net transport.

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Winters, G.V., Buckley, D.E. 1978. In situ determination of total particulate and dissolved organic matter [abstract]. In: The state of the art in analytical chemistry and applied spectroscopy; Abstracts, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy (29th : 1978 : Cleveland, Oh). [Pittsburgh?: The Conference]. P.578.

An optical technique has been developed for in situ determination of estuarine total particulate and dissolved organic matter concentrations in the water column.

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Winters, G.V., Buckley, D.E. 1978. In situ monitoring data on the water column in the Miramichi estuary, New Brunswick. Bedford Institute of Oceanography Data Series BI-D-78-9. 131p.

Seasonal data obtained by in situ monitoring of the water column in the Miramichi estuary are presented. These data include total salinity, temperature, dissolved oxygen, current speed and direction, tide height and visible light optical beam determined dissolved organic matter and suspended particulate matter.

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Winters, G.V., Buckley, D.E. 1980. In situ determination of suspended particulate matter and dissolved organic matter concentrations in an estuarine environment by means of an optical beam attenuance meter.

Estuarine and Coastal Marine Science 10(4): 455-466. (BIO Contribution No. 914)

An optical beam attenuance technique has been developed for the *in situ* determination of estuarine total particulate matter and dissolved organic matter concentrations in the water column.

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Winters, G.V., Buckley, D.E., Cranston, R.E. 1975. A method of evaluating labile trace metal concentrations in natural waters. Bedford Institute of Oceanography Report Series BI-R-75-19. 19p.

A method of evaluating labile and total trace metal concentrations in natural waters.

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Winters, G.V., Buckley, D.E., Cranston, R.E., Fitzgerald, R.A., Stoffyn, M. 1984. Geological and geochemical data for sediment and pore water samples from the northeastern Pacific Ocean, off the coast of Cape Mendocino, California. Geological Survey of Canada Open File 1034. 33p.

This report consists of data that were compiled from sediment and pore water analyses of cores collected from abyssal depths off Cape Mendocino. Analyses of sediment samples include color, grain size, water content, organic carbon, total carbon, total major and trace metals, and weak acid leachable and reducible metal residual fractions. Pore water analyses include major cations, nutrients, some trace metals and free hydrogen ion, electrons and sulfide ion.

1591
Winters, G.V., Buckley, D.E., Cranston, R.E., Fitzgerald, R.A., Stoffyn, M., Stoffyn-Egli, P. 1984. Geological and geochemical data for sediment and pore water samples from the Nares abyssal plain, north western Atlantic Ocean. Geological Survey of Canada Open File 1108. 90p.

Geological and chemical data are compiled from sediment and from sediment pore water analysis of samples from the Nares abyssal plain, NW Atlantic. Analysis of sediment samples include colour, mean grain size, water content, organic carbon, total carbon, total major metals, trace metals and weak acid leachable and reducible metal residual fractions. Pore water analysis include major cations, nutrients, some trace metals, free hydrogen ion, free electrons and sulfide ion concentrations.

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Winters, G.V., Buckley, D.E., Cranston, R.E., Fitzgerald, R.A., Stoffyn, M., Stoffyn-Egli, P. 1984. Geological and geochemical data for sediment and pore water samples from the Sohm abyssal plain, northwestern Atlantic Ocean. Geological Survey of Canada Open File 1082. 50p.

Geological and chemical data are compiled from sediment and from sediment pore water analyses of samples from the Sohm abyssal plain NW Atlantic Ocean. Analyses of sediment samples include colour, grain size, water content, organic carbon, total major metals, trace metals, weak acid leachable and reducible metal residual fractions. Pore water analyses include major cations, nutrients, some trace metals, free hydrogen ion, free electrons and sulfide ion concentrations.

1593
Winters, G.V., Fitzgerald, R.A., Buckley, D.E. 1978. Analyses of water column and bottom sediment samples from the Miramichi estuary, New Brunswick. Bedford Institute of Oceanography Data Series BI-D-78-8. 81p.

Water and sediment samples were collected in the Miramichi estuary during six seasonal visits. These samples were analysed for both major and minor components.

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Winters, G.V., Perkins, C. 1975. Dependance of chelatable iron concentrations on hydrolysis equilibrium - an analytical implication. In: Abstracts of the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy (26th : 1975 : Cleveland, Oh). Pittsburgh: The Conference. Unpaged.

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Winters, G.V., Perkins, C.L. 1976. Dependence of labile iron in aqueous solution on total iron, storage pH and storage time. Canadian Journal of Spectroscopy 21(1): 36-40. (BIO Contribution No. 534)

Iron hydrolysis has been investigated as a possible cause of the disagreement that exists between laboratories which use similar chelation-solvent extraction - atomic absorption spectroscopy techniques for iron in seawater analyses.

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Winters, G., Syvitski, J.P., Kelly, B., Clattenburg, D. 1984. SAFE: 1983 attenuance and suspended particulate matter data. In: Sedimentology of Arctic Fjords Experiment; HU 83-028 Data Report, Volume 2, comp., J.P.M. Syvitski. Canadian Data Report of Hydrography and Ocean Sciences 28: 4.1-4.128. Also published in Geological Survey of Canada Open File 1122.

1597
Woodside, J.M. 1979. Gravity and magnetic data as natural resource charts for Saglek Bank area of Labrador continental margin. Geological Survey of Canada Open File 607. 14p.

1598
Wright, J.A., Keen, C.E., Keen, M.J. 1984. Marine heat flow along the

northeast coast of Newfoundland. Geological Survey of Canada Paper 84-1B: 93-100.

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Young, I.F., King, L.H. 1977. Paleocontinental slopes of east coast geosyncline (Canadian Atlantic margin). Canadian Journal of Earth Sciences 14(11): 2553-2564. (BIO Contribution No. 700)

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[Barss, M.S.] 1972. [Contribution to] the Carboniferous of eastern Canada, by P.A. Hacquebard. In: Compte Rendu, Congrès Internationale de Stratigraphie et de Géologie du Carbonifère (7e : 1971 : Krefeld). V.1: 69-90.

Contribution to this paper consisted of identifications of 17 spore assemblage zones and the regional and vertical distribution of these zones in a large number of columnar stratigraphic sections.

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[Buckley, D.E.] 1984. Southern Nares abyssal plain. In: International NES/Seabed Working Group Meeting (8th : 1983 : Varese, Italy), ed., D.R. Anderson. Albuquerque: Sandia National Laboratories. P.57-70. Available from NTIS: Sand-83-2122

Preliminary results obtained from survey data and shipboard analyses of sediment cores taken on HUDSON 82-018 cruise to the southern Nares abyssal plain indicate that sediment types are not homogeneous over even relatively small areas. Sedimentation rates also apparently vary with some sediments being deposited as distal turbidites, others as nearly constant pelagic clay. Geochemical redox indicators demonstrate that redox discontinuities vary with type of sediment.

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[Buckley, D.E.] ([contrib.]), [Cranston, R.E.] ([contrib.]) 1970. [Analyses of trace elements in sea water by means of atomic absorption spectroscopy]. In: Trace Element Intercalibration Study, P.G. Brewer and D.W. Spencer. Woods Hole Oceanographic Institution Technical Report 70-62. 77p.

Chelation and solvent extraction methods were used to quantitatively determine 8 trace transition elements, while direct atomic absorption methods were used for an additional 2 alkali elements.

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[Howie, R.D.] 1972. Oil shale. In: Stratigraphy and economic geology of Carboniferous basins in the maritime provinces, H.W. Van de Poll. International Geological Congress (24th : 1972 : Montreal) Guidebook field excursion A60: 39-40.

Data on oil, gas and oil shale in Nova Scotia and New Brunswick.

1604
[McCrossan, R.G.], [Procter, R.M.], [Roy, K.J.], [Sanford, B.V.] 1973. Energy reserves and potential resources, a) oil and gas. In: An Energy Policy for Canada, Phase I. V.2, appendices. Ottawa: Department of Energy, Mines and Resources. P.31-56.

Summarizes the geology of potential petroleum sources of Canada; reviews G.S.C. methodology and estimates of hydrocarbon potential in Canada (including eastern Canada); and compares with other published estimates.

AUTHOR INDEX

Key to Institutional Abbreviations in the Affiliations

AGC	Atlantic Geoscience Centre (Division)
AOL	Atlantic Oceanographic Laboratory (Division)
BIO	Bedford Institute of Oceanography
CCIW	Canadian Centre for Inland Waters
CHS	Canadian Hydrographic Service
DEMR	Department of Energy Mines and Resources
DSDP	Deep-Sea Drilling Project
EMG	Environmental Marine Geology (Subdivision)
EPB	Earth Physics Branch
EPG	Eastern Petroleum Geology (Subdivision)
F&O	Fisheries and Oceans (Department)
GSC	Geological Survey of Canada
HYD	Canadian Hydrographic Service
IF	Institute Facilities (Division)
ISPG	Institute of Sedimentary and Petroleum Geology (Division)
MEL	Marine Ecology Laboratory (Division)
MIT	Massachusetts Institute of Technology
NOAA	National Oceanographic and Atmospheric Agency
NSRF	Nova Scotia Research Foundation
OSS	Ocean Science and Surveys (Branch)
PSS	Program Support Subdivision
RR	Regional Reconnaissance (Subdivision)
UBC	University of British Columbia
USGS	United States Geological Survey
WHOI	Woods Hole Oceanographic Institute

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